UNIT 1 Matter

Lessons of the unit :

Unit Objectives By the end of this unit, you will be able to :

- Use the length and mass measuring tools.
- Calculate the volume of solid objects.
- Conclude that the equal volumes of different materials have different masses.
- Examine the shape of a set of solid materials.
- Perform activities to conclude the properties of metals and non-metals.
- Classify the materials into metals and non-metals.
- Compare between metals and non-metals.
- Record your daily observations on some of the changes occurred in matter.
- Participate your classmates in performing the activities of the unit.



LESSON 1 Measuring tools

- When you go shopping with your mother, you buy many things which differ in shape and size, but all of them are called Matter Because they have Mass and Volume.
- So, what is meant by matter, mass and volume ?



Matter:

It is anything that has a mass and a volume.

Or

It is everything that has a mass and occupies part of space.

Mass:

It is the amount of matter that the object contains.

Volume:

It is the space that is occupied by the object (matter).

- **To deal with some matter, we must measure their length, mass and volume.**

shopping	التسوق	matter	مادة	mass	كتله
occupy	يشغل	volume	حجم	deal	يتعامل
length	طول	measure	يقيس		



Unit 1

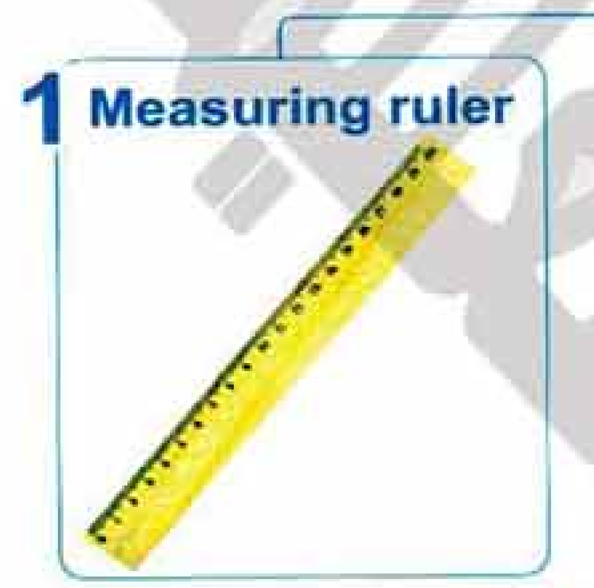
Length



- When you buy cloth, the vendor asks you about the length of cloth you need.
- Let's see the measuring tools and the measuring units of length.

Length measuring tools

1 Measuring ruler





2 Graduated tape



Length measuring units

1 Centimetre (cm) or part of centimetre

It is suitable for measuring small lengths as the length of a pencil or a book.

2 Metre (m)

It is suitable for measuring large lengths as the dimensions of your classroom.

3 Kilometre (km)

It is suitable for measuring very large lengths as the distance between Cairo and Alexandria.









Notes

1 Metre (m) = 100 centimetres (cm).
1 Kilometre (km) = 1000 metres (m).

vendor	البائع	measuring tools	أدوات القياس	measuring units	وحدات القياس
cloth	قماش	suitable	مناسب	dimensions	أبعاد

LESSON 1



Mass



When you go with your mother to buy fruits, the seller asks you about the mass of fruits you want.

Mass measuring tools

1 Common balance (Two-pans balance)

It measures the mass of large objects as tomatoas and cheese.



2 Sensitive balance

It measures the mass of tiny (small) objects as things made of gold and chemicals in the laboratory.



Mass measuring units

1 Gram (g) or a part of gram

It is suitable to measure small masses such as jewellery.



2 Kilogram (kg)

It is suitable to measure large masses such as fruits and vegetables.



3 Ton

It is suitable to measure very large masses such as cars.



sensitive balance	الميزان الحساس	jewellery	مجوهرات	laboratory	المعمل
chemicals	الكيماويات	two-pans balance	ميزان ذو كفتين	tiny	صغير جدًا



Unit 1



Notes

1 Kilogram (kg) = 1000 grams (g). 1 Ton = 1000 Kilograms (kg).

Volume

When you go to buy milk, you must mention the volume of milk (the number of litres) you want.



Volume measuring tools

1 Graduated cylinder

It measures the volumes of :

a. Liquids (as water, oil, milk ... etc.).

b. Irregular solid bodies (as a stone).

2 Ruler

It measures the dimensions of a regular solid body (in order to calculate its volume).

Volume measuring units

1 The litre (L) or millilitre (ml)

It is used for estimating the volumes of liquids only.

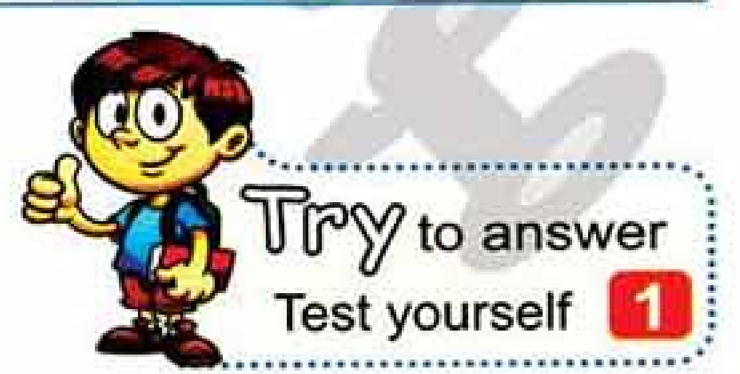
2 The cubic metre (m^3) or cubic centimetre (cm^3)

It is used for estimating the volumes of solids and liquids.

Notes

1 Litre (L) = 1000 millilitres (ml) = 1000 cm^3.

1 millilitre (ml) = 1 cubic centimetre (cm^3).



graduated cylinder	مخبار مدرج	irregular solid body	جسم صلب غير منتظم
regular solid body	جسم صلب منتظم	mention	يذكر
dimensions	أبعاد	estimate	يقدّر / يقيس



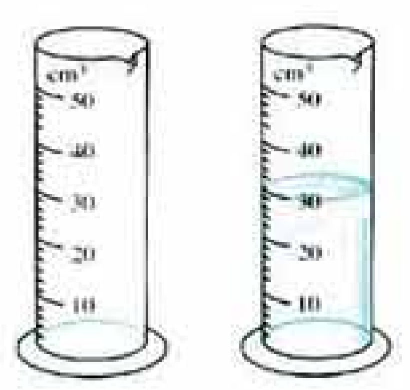


Ways (methods) of measuring the volumes :

1 Estimating the volume of an amount of a liquid (water) :

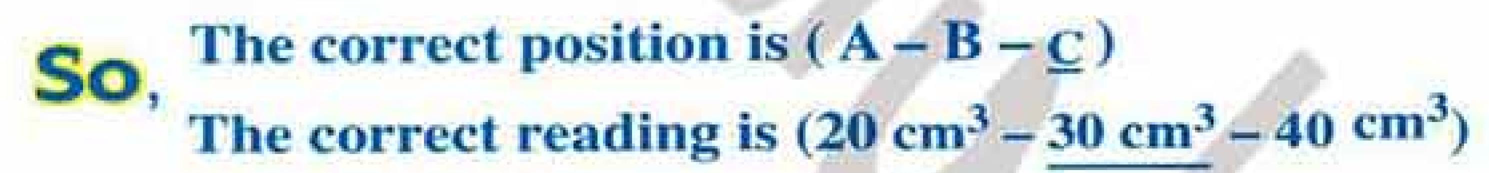
a. Pour an amount of water or any liquid into a graduated cylinder.

b. Record the reading of the cylinder at the lower point of the water surface.

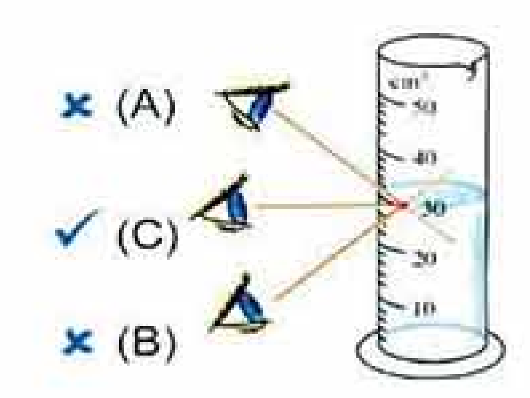


⊙ **How to have a correct reading for this liquid :**

Your eyes must be in a horizontal position at the lower point of the liquid surface.



So, The correct position is (A – B – <u>C</u>)
The correct reading is (20 cm³ – <u>30 cm³</u> – 40 cm³)

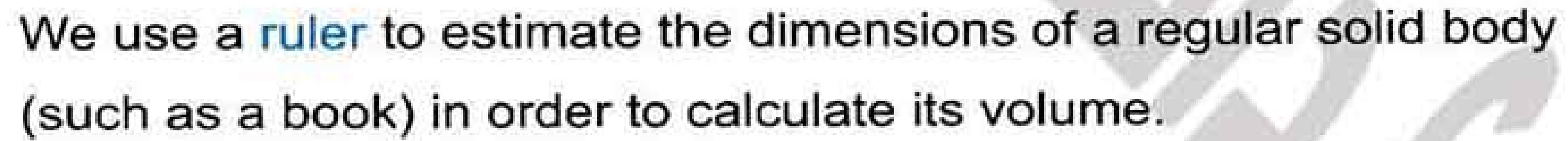


2 Estimating the volume of a solid body (regular or irregular) :

(A) A regular solid body



(Cuboid as a box or a book) :

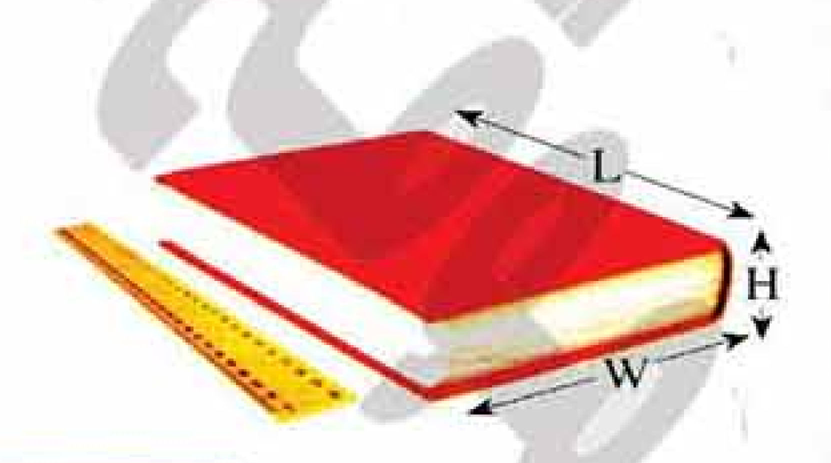


We use a ruler to estimate the dimensions of a regular solid body (such as a book) in order to calculate its volume.



⊙ **How to calculate its volume :**

1. Measuring the length, the width and the height of the book by a ruler.
2. Calculate the volume of the book by using this relation :



Volume = Length × Width × Height

ways / methods	طرق	pour	يَصب	record	يسجل
lower level	أقل مستوى	horizontal	أفقى	width	العرض
calculate	يحسب	position	وضع	height	ارتفاع

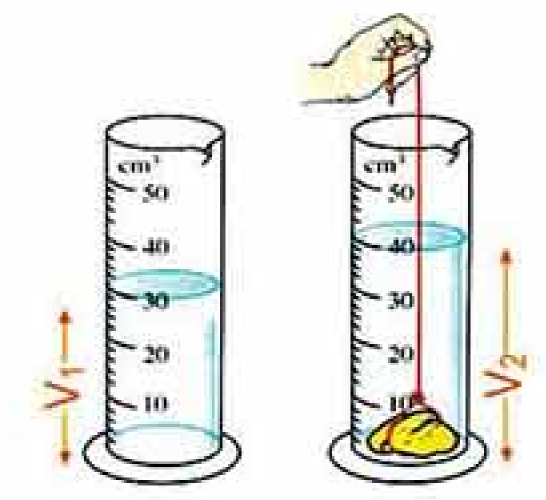
Unit 1

B An irregular solid body

(It must be insoluble in water as a piece of stone or marble) :

We use a graduated cylinder to estimate the volume of an irregular solid body (such as a stone).

⊙ How to calculate its volume :



1. Pour an amount of water in a graduated cylinder and record the volume of water (V_1).
2. Put a piece of stone carefully in the cylinder (as shown in the figure) and record the new volume of water with the stone (V_2).
3. The volume of the stone = the difference between the two readings

$$= V_2 - V_1 = \dots\dots\dots \text{ cm}^3$$





When a body is submerged in a cylinder full of a liquid completely, an amount of the liquid is spilled out from the cylinder.

So, The volume of the body = the volume of the spilled water

G.R.

- **When some pieces of stone are put in a glass full of water, an amount of water is spilled out of the glass.**

  Because the pieces of stone have volume which replaces the volume of the spilled water.

- **You cannot use water to measure the volume of a piece of sugar.**

  Because sugar is soluble in water.

insoluble	غير ذائب	submerged	يَغمر
marble	بلية	completely	كاملًا
carefully	بعناية	spilled out	ينسكب
difference	الفرق		



Problems

1. **Find the volume of a brick, knowing that its length = 20 cm, its width = 10 cm and its height = 5 cm.**



Solution

The volume of the brick = Length × Width × Height

$= 20 \times 10 \times 5 = 1000 \text{ cm}^3$

2. **Your classmate has 50 cm^3 beaker completely filled with water. When he puts a piece of stone in it, 20 cm^3 of water is spilled out of the beaker. What is the volume of the piece of stone ?**

Solution

The volume of the piece of stone = the volume of the spilled water

$= 20 \text{ cm}^3$

3. **When you put a piece of stone in a graduated cylinder containing 32 cm^3 of water, the water level rises up to 40 cm^3. Find the volume of the stone.**

Solution

The volume of the stone = $V_2 - V_1$

$= 40 - 32 = 8 \text{ cm}^3$

4. **When your brother put two marbles of the same volume in a graduated cylinder containing 30 cm^3 of water, the water level raised to 50 cm^3. What is the volume of each marble ?**



Solution

The volume of the two marbles = $V_2 - V_1$

$= 50 - 30 = 20 \text{ cm}^3$

- The volume of each one = $\frac{20}{2} = 10 \text{ cm}^3$

brick قالب طوب raised ارتفع beaker وعاء



The relation between the volume and the mass of matter



- **Equal volumes of different substances have different masses.**
- The cubes in the opposite figure are made of different substances such as iron, wood, glass ... etc.

They have equal volumes, but they have different masses.

Activity **To prove that equal volumes of different substances have different masses.**

Steps:



1. Get two cubes having the same volume. One of them is made of iron and the other is made of wood.
2. Put the iron cube in one pan of a common balance and the wooden cube in the other pan.

Observation:

The iron cube has larger mass than the wooden cube.

Conclusion:

Equal volumes of different substances have different masses.



relation	العلاقة	iron	حديد
cube	مكعب	wooden	خشبى



Remember

- **Matter** is anything that has a mass and a volume.
- **Mass** is the amount of matter that the object contains.
- **Volume** is the space that is occupied by the matter.
- **Length :**
  - **Measuring tools :** measuring ruler and graduated tape.
  - **Units :** centimetre, metre and kilometre.
- **Mass :**
  - **Measuring tools :** common balance and sensitive balance.
  - **Units :** gram, kilogram and ton.
- **Volume :**
  - **Measuring tools :** graduated cylinder and ruler.
  - **Units :** litre, millilitre, cubic metre and cubic centimetre.
- **Volume of a regular solid body =** Length × Width × Height
- **Volume of an irregular solid body =** $V_2 - V_1$
- **Equal volumes** of different substances have **different masses**.



Questions on lesson one

Questions signed by 📖 have been taken from the school book.

1. Choose the correct answer:

1. The space occupied by matter is known as ....
   a. length. b. volume. c. mass. d. (a) and (b).
2. Milk has ....
   a. mass only. b. volume only.
   c. length. d. mass and volume.
3. Cheese has ....
   a. volume only. b. length.
   c. mass only. d. mass and volume.
4. .... are measuring tools that measure the length of any object.
   a. Graduated cylinders b. Sensitive balances
   c. Graduated ruler and graduated tape
   d. Two-pans balance and sensitive balance
5. A .... is one of the measuring units that estimate the length of any object.
   a. centimetre b. kilogram c. gram d. litre
6. Five metres equal .... centimetres.
   a. 200 b. 500 c. 20 d. 5
7. .... is used to measure very small masses in the laboratories.
   a. Ruler b. Sensitive balance
   c. Two-pans balance d. Glass
8. The .... is a tool used for measuring the mass of matter.
   a. measuring cylinder b. measuring tape
   c. common balance d. measuring ruler
9. Gram and kilogram are units that measure the .... of any object.
   a. length b. mass c. volume d. height
10. 1000 kilograms = ...
    a. 2 tons. b. 1000 grams. c. 1 ton. d. (b) and (c).
11. The .... is a measuring unit of mass.
    a. kilometre b. litre c. kilogram d. centimetre



12. The jeweller uses .... to estimate the mass of jewellery.
    a. conical flask
    b. graduated ruler
    c. sensitive balance
    d. two-pans balance
13. Volume of cuboids = ...
    a. length × width × height.
    b. length - width - height.
    c. length × width.
    d. length + width + height.
14. The measuring cylinder can be used to determine the ....
    a. volume of a liquid.
    b. volume of an irregular solid body.
    c. mass of a regular solid body.
    d. (a) and (b).
15. The volume of the box that is shown in the figure = ... cm^3

    5 cm, 2 cm, 2 cm

    a. 20
    b. 15
    c. 10
    d. 50
16. We can determine the volume of a liquid by using ....
    a. measuring cylinder.
    b. graduated tape.
    c. common balance.
    d. ruler.
17. Two litres of water equal .... litres of milk.
    a. 5
    b. 2
    c. 3
    d. 4
18. The volume of a solid material is measured in .... unit.
    a. cm
    b. cm^2
    c. m^2
    d. cm^3
19. We can determine the volume of an irregular small stone that doesn't dissolve in water by using ....
    a. glass beaker.
    b. measuring cylinder.
    c. common balance.
    d. graduated ruler.
20. When a piece of stone is put in a jar containing 30 cm^3 of water, the water level raises to 50 cm^3, so that the volume of the piece of stone equals ....
    a. 20 cm^3
    b. 30 cm^3
    c. 50 cm^3
    d. 80 cm^3
21. If the dimensions of your eraser are 5, 3 and 2 cm, so the volume of the eraser equals .... cm^3
    a. 150
    b. 30
    c. 100
    d. 250



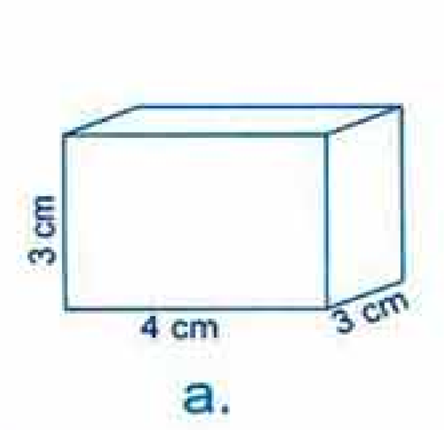
22. A graduated cylinder has 100 cm^3 of water. When a pupil puts four marbles equal in size in it, the water level raises to 120 cm^3. What is the volume of each marble ? ....

a. 30 cm^3 b. 25 cm^3 c. 20 cm^3 d. 5 cm^3

23. When your classmate puts a piece of iron in 50 cm^3 beaker that is completely filled with water, a quantity of 20 cm^3 of water is spilled out, so the volume of the piece of iron equals ....

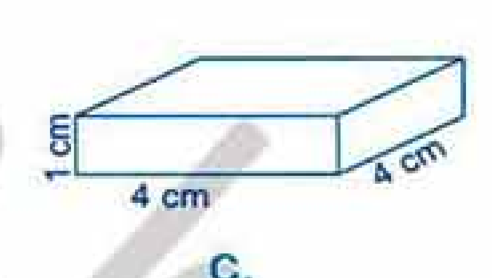
a. 20 cm^3 b. 30 cm^3 c. 50 cm^3 d. 70 cm^3

24. All the following objects are made up of iron.
Which of them has the least volume ? ....

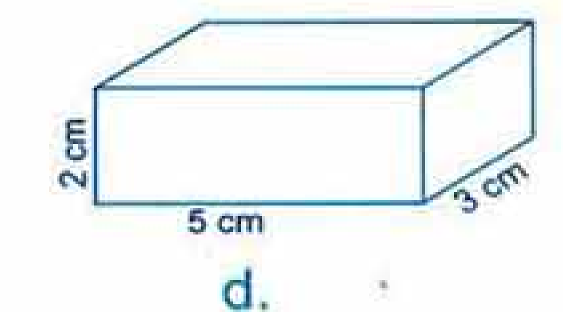


a.

4 cm
2 cm
3 cm
b.



c.



d.

2. Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The litre	a. is a unit used in estimating the mass of objects.
2. Kilogram	b. is used in measuring the volume of liquids and irregular solid bodies.
3. Graduated tape	c. is used to measure the mass of object.
4. Measuring cylinder	d. is a unit used to measure the volume of liquids.
5. Balance	e. is used to measure the length.

1. .... 2. .... 3. .... 4. .... 5. ....

3. Put (✓) in front of the right statement and (✗) in front of the wrong one, then correct it :

1. Volume is the amount of the matter that the object contains. ( )
2. Salt has a volume. ( )
3. Graduated ruler is one of the measuring units of mass. ( )
4. Centimetre and gram are the measuring units of length. ( )
5. Centimetre is the measuring unit of large lengths, while metre is the measuring unit of small lengths. ( )



6. We use the graduated tape and the measuring ruler in measuring length. ( )
7. Gram unit is used to measure the volume of small objects, while kilogram is used to measure the mass of vegetables. ( )
8. Sensitive balance is used to measure the mass of jewels. ( )
9. Common balance is the measuring unit of volume. ( )
10. One kilometre = 100 metres. ( )
11. The cubic metre and cubic centimetre are used for estimating the volumes of solids. ( )
12. The volume of a cuboid of iron is estimated by measuring its length only. ( )
13. To determine the volume of a liquid in the graduated cylinder, your eyes must be in a horizontal position at the lower point of the surface. ( )
14. The correct reading of the volume of water in this cylinder is (A). ( )

15. Graduated ruler is used to determine the volume of an irregular small stone. ( )
16. Equal volumes of different materials have equal masses. ( )
17. The mass of one litre of water equals the mass of one litre of milk. ( )

4. Write the scientific term of each of the following :

1. Everything that occupies a space and has a mass. (..................)
2. The amount of matter that the object contains. (..................)
3. The space that is occupied by the object. (..................)
4. Anything that has a volume and a mass. (..................)
5. Tools used to measure the length of objects. (..................)
6. A unit used to measure the small lengths as the length of your pen. (..................)
7. A tool used to measure the mass of gold, silver and chemical substances in laboratories. (..................)
8. A tool used to measure the mass of fruits. (..................)
9. A unit used to measure the small masses as jewellery. (..................)

10. A unit used to measure the large masses as fruits and vegetables. (..................)
11. A tool used to estimate the volumes of liquids or any irregular solid body. (..................)
12. A unit used to measure the mass of very big objects. (..................)
13. Length × width × height. (..................)
14. The units used to estimate the volumes of solids. (..................)
15. The measuring units of the volumes of liquids. (..................)

5. Complete the following statements :

1. Matter has .... and ....
2. Everything that occupies a space and has a mass is called ....
3. .... is the amount of matter that the object contains.
4. Oxygen gas occupies a space, so it has a ....
5. Measuring ruler is used to measure ....
6. Measuring tape is used for measuring ....
7. The length can be measured by some units as .... or ....
8. .... is the suitable unit to measure the length of your pencil.
9. Metre is the unit for measuring ....
10. .... unit is used to measure small lengths, while......... unit is used to measure very large lengths.
11. Three metres = ... centimetres.
12. .... unit is used to measure the distance between Cairo and Aswan.
13. .... is the tool used to estimate the mass of vegetables or cheese.
14. .... is the tool used to measure the mass of the chemical materials and things made of gold.
15. .... unit is used to measure small masses, while .... unit is used to measure big masses.
16. .... unit is used to measure the mass of very big (heavy) objects.
17. Common balance is used for measuring ....
18. One kilogram = ... grams.
19. 1 Ton = ... kilograms.
20. Kilogram is the measuring unit of .... , while metre is the measuring unit of ....
21. .... is the tool that is used to measure the volume of orange juice.



22. Graduated cylinder is used to measure the .... of liquids and ....
23. The units of measuring the volume of a solid body are .... and ....
24. The litre unit is used to measure the .... of liquids.
25. When we put an amount of a liquid in a graduated cylinder, the reading of the cylinder indicates the .... of the liquid.
26. .... is the tool that is used to estimate the volume of an irregular piece of rock, while .... is the tool that is used to estimate the mass of very light objects.
27. The kilogram is the measuring unit of .... , while cubic centimetre is the measuring unit of ....
28. 1 litre = ... millilitres.
29. The volume of the book can be calculated by multiplication .... × .... × ....
30. Amr calculated the mass of four pieces of different materials that are equal in volume. He compared the mass of each of them. Amr wants to prove that equal volumes of different materials have ....

6. Correct the underlined words :

1. Six metres = 100 centimetres. (..................)
2. Graduated ruler is used to measure the mass. (..................)
3. Common balance is used to measure the volume of objects. (..................)
4. Volume of liquids is measured by using sensitive balance. (..................)
5. Graduated tape is used to measure the mass of fruits and vegetables. (..................)

7. Give reasons for the following :

1. The car has a volume.
....
2. Glass is a matter.
....
3. Air is a matter.
....
4. When some pieces of stone are put in a glass full of water, an amount of water is spilled out of the glass.
....



5. You can't use water to measure the volume of a piece of sugar.

....

8. Mention one use of each of the following :

1. Graduated tape.

....

2. Graduated ruler.

....

3. Common balance.

....

4. Sensitive balance.

....

5. Graduated cylinder.

....

9. Define the following :

1. Matter.

....

2. Mass.

....

3. Volume.

....

10. Which is larger and Why ?

1. Metre or centimetre.

....

2. Kilogram or ton.

....

3. Kilometre or metre.

....

4. Kilogram or gram.

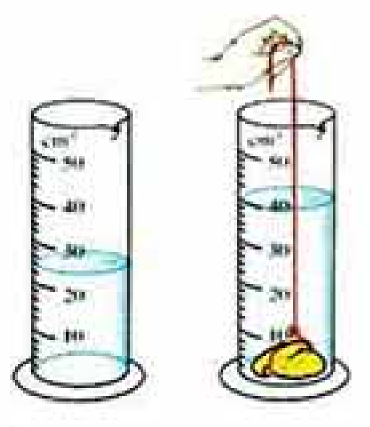
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5. Millilitre or litre.

....



11. Problems :



1. The graduated cylinder that is shown in the opposite figure contains 25 cm^3 of water. When an irregular piece of stone was put in it, the level of water became 40 cm^3. Find the volume of the piece of stone.

....

....

2. A glass is filled completely with water and 6 equal-sized marbles are put in it. Calculate the volume of each marble if the volume of the spilled water = 12 cm^3.

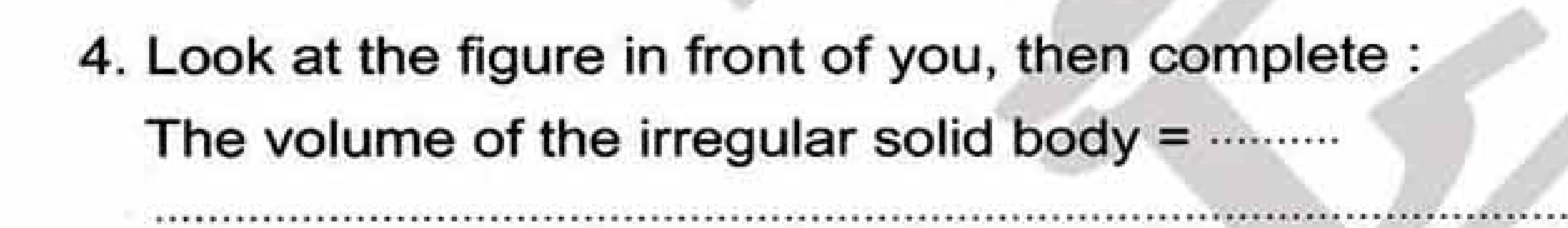
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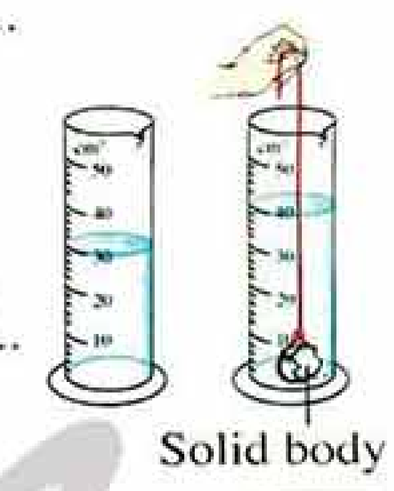
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3. Calculate the volume of a cuboid whose length is 5 cm., its width equals 3 cm. and its height equals 2 cm.

....

....





4. Look at the figure in front of you, then complete :
The volume of the irregular solid body = ...

....

Solid body



5. A mobile phone whose length equals 8 cm. , its width is half its length and its height is 2 cm. Calculate its volume.

....

....

6. A graduated cylinder contains 100 cm^3 of water. When 4 equal-sized marbles were put in it, the level of water became 120 cm^3.
Complete the following :
a. The volume of 4 marbles = ...

....

b. The volume of each marble = ...

....



12. Complete the following table :

Points of comparison	Length	Mass	Volume
1. Measuring units :	.... , ... and	.... and	.... , ... and ....
2. Measuring tools :	.... and	.... and	.... and ....

13. Your classmate determine the mass of three cubes that are equal in volume. He finds out that they are equal in mass.
Are these cubes made of the same matter or different matter ? Why ?

....

....

14. You have a measuring cylinder and some water.
How can you use these materials to estimate the volume of a medal ?

....

....

....



Timss Questions

1.







Which of the boxes X, Y or Z has the least mass ?

a. Box (X).

b. Box (Y).

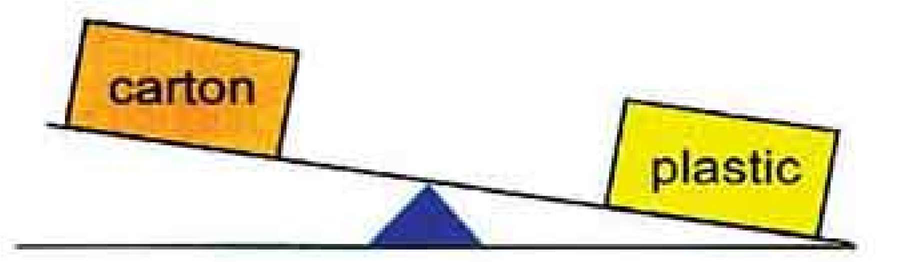
c. Box (Z).

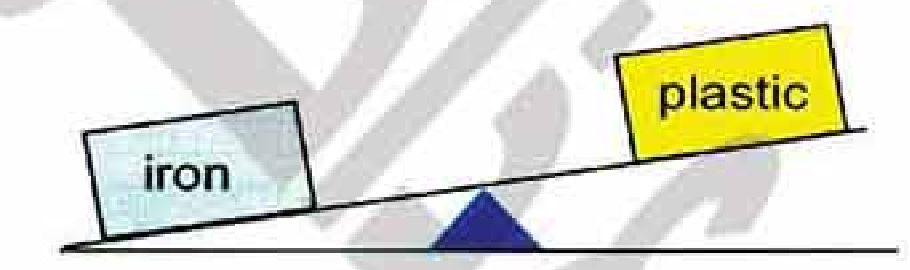
d. All the three boxes have the same mass.

2. If you have 2 equal-sized marbles each one has the volume 2 cm^3 and you put them in a graduated cylinder contains 30 cm^3 of water.
Calculate the reading of the graduated cylinder after putting the 2 marbles in it.

....

3.





a. **The three boxes in the previous figure have the same volume but they are made of different substances, which one of the three boxes weighs the most ?**

a) The plastic box. b) The iron box. c) The carton box.

b. **Why ?** ....

4. **Find the volume of a cube**, knowing that its side length = 3 cm.

....

....





LESSON 2

Matter states and its changes

Matter can exist in three states as water.
In the opposite photo,you can observe :

1. Snow (ice) ➡ a soild state matter.
2. Water ➡ a liquid state matter.
3. Clouds (water vapour) ➡ a gaseous state matter.

The three states of matter are

1 Solid state

Examples

Ice
Iron
Wood

2 Liquid state

Examples

Water
Oil
Milk

3 Gaseous state

Examples

Air
Carbon dioxide
Water vapour

Now, we will study each state of matter.

1 Solid matter



Sugar

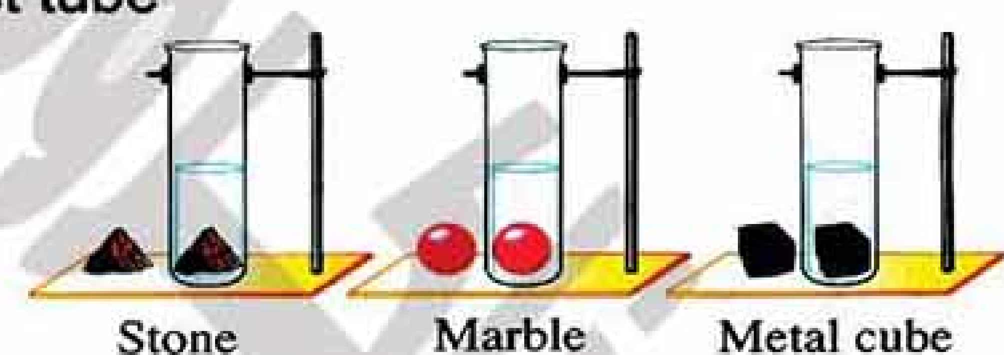
- It has a definite shape and a definite volume.
- **Some other examples of solid matter :**
  Sugar, table salt, gold, silver, copper and aluminium.



Activity 1 **To prove that solid matter has a definite shape and a definite volume.**

Steps:

1. Put each body in front of you in a test tube containing water.
2. Compare between the shape and the volume of each body in the test tube with its real shape and volume.



Stone Marble Metal cube

Observation:

The volume and the shape of each body do not change.

Conclusion:

Solids have definite shapes and definite volumes.

G.R.

Gold and copper are solids.

Because they have definite shapes and definite volumes.

definite	مُحدد	table salt	ملح الطعام
copper	نحاس	real	حقيقى
gold	ذهب	silver	فضة



Unit 1

2 Liquid matter


Water

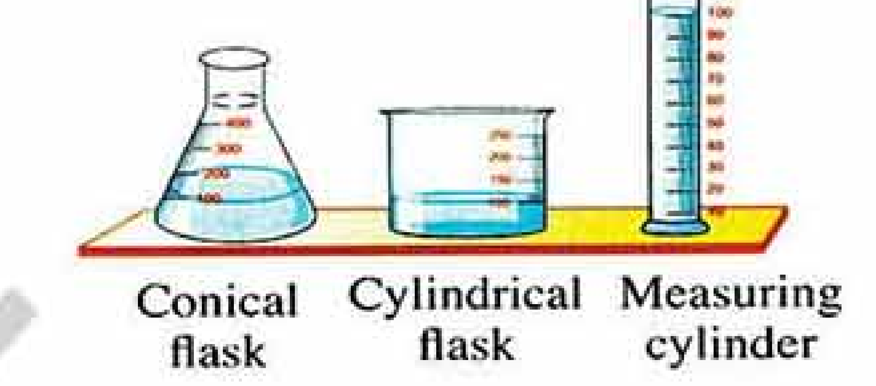
- It has a definite volume and an indefinite shape (It takes the shape of its container).
- **Some other examples of liquid matter :** Alcohol, kerosene, juice and mercury.



Activity 2 **To prove that liquid matter has a definite volume and an indefinite shape.**

Step:

Put 100 cm³ of water in each of the shown containers.


Conical flask | Cylindrical flask | Measuring cylinder

Observation:

The volume of water doesn't change, but its shape changes taking the shape of its container.

Conclusion:

Liquids have definite volumes, but they do not have definite shapes (have indefinite shapes).

G.R.

Milk is a liquid matter.

Because it has a definite volume and an indefinite shape.

3 Gaseous matter


Cloud (water vapour)

- It has an indefinite shape and an indefinite volume (it takes the shape and the volume of its container).
- **Some other examples of gaseous matter :** Oxygen and nitrogen.

indefinite	غير مُحدد	container	وعاء	alcohol	كحول
mercury	زئبق	conical flask	وعاء مخروطى	cylindrical flask	وعاء اسطوانى





Activity 3: To prove that gaseous matter has an indefinite shape and an indefinite volume.



Steps:

1. Blow air in a balloon and tie it with a thread.
2. Press on the balloon with your hand.

Observation:

The shape and volume of air change by pressing on the balloon.

Conclusion:

Gases have indefinite shapes and indefinite volumes.



G.R.

Air is a gaseous matter.

Because it has indefinite shape and indefinite volume.



Note

A gaseous matter as oxygen can be compressed (pressed) inside cylinders, because it has an indefinite shape and volume,so it takes the shape and the volume of its container.



Oxygen cylinder

Exercise

Put (✓) or (✗) :

1. *Liquids have definite shapes and volumes.* ( )
2. *Solid substances have definite shapes and indefinite volumes.* ( )



blow	ينفخ	tie	يربط	thread	خيط
cylinders	إسطوانات	compress/press	يضغط		





Changes of matter

- At the ordinary room temperature, any matter exists in only one state.
- Matter can be changed from one state to another by heating or cooling.

So, water can be changed from one state to another by heating or cooling.

1 Solid state (Ice)	heating ⇄ cooling	2 Liquid state (Water)	heating ⇄ cooling	3 Gaseous state (Water vapour)





Now, we will study the changes of matter from one state to another.

1 The change of matter from the solid state to the liquid state



When you put some ice cubes in a glass cup for a period of time, you observe that ice changes into water as it takes heat from the air.

This process is called "melting".





Melting

It is the change (transfer) of matter from the solid state to the liquid state by heating.



Note



In gold industries, the melting process is used to reshape the gold easily then the gold is cooled to return back into solid state again.

room temperature	درجة حرارة الغرفة	exist	يوجد
change / transfer	تحول	heating	تسخين
cooling	تبريد	melting	إنصهار

2 The change of matter from the liquid state to the gaseous state



Activity 4 To show that water changes from the liquid state to the gaseous state.



Step:

Boil an amount of water in a pot or try to prepare tea.

Observation:

The amount of water in the pot decreases, because it changes into water vapour that comes out of the pot.

Conclusion:

Water changes from the liquid state to the gaseous state by heating and this process is known as "evaporation".

Evaporation

It is the change of matter from the liquid state to the gaseous state by heating.



Write the scientific term :

1. *The change of matter from the solid state to the liquid state.* (...........)
2. *The transfer of water into water vapour by heating.* (...........)
3. *A state of matter that has an indefinite shape and volume.* (...........)

gold industry	صناعة الذهب	boil	يغلى
reshape	اعادة تشكيل	evaporation	تبخير
prepare	يحضر		



Unit 1

3 The change of matter from the gaseous state to the liquid state

Examples :



1. Appearance of some water droplets on cold surfaces such as leaves of plants and cars in winter.



2. Appearance of some water droplets on the lids of cooking pans during cooking.



3. Appearance of some water droplets on a glass containing ice and left in the air.

In the previous examples, the process that causes the formation of water droplets is known as "condensation".





Condensation

It is the change of matter from the gaseous state to the liquid state by cooling.



Formation of water droplets on the outer surface of a bottle filled with ice.

Due to the condensation of water vapour found in the air on the outer surface of the bottle.

appearance	ظهور	droplets	نقط
cold surface	سطح بارد	lid	غطاء
cooking pans	أوانى	condensation	التكثيف

4 The change of matter from the liquid state to the solid state



When you put an amount of water in the freezer for some hours, you observe that water changes into ice. This process is called "freezing".

Freezing

It is the change of matter from the liquid state to the solid state by cooling.



Notes

1. The volume of water increases on freezing,
So, The volume of ice is bigger than that of water when they have the same mass.
2. From all previous explanation we can notice that :
   a. Cooling (decreasing the temperature) is accompanied by condensation and freezing.
   b. Heating (increasing the temperature) is accompanied by melting and evaporation.
3. Melting is the opposite of freezing.
4. Evaporation is the opposite of condensation.

G.R.

The glass bottle which is put in the freezer shouldn't be full of water.

Because the volume of water increases on freezing, so the bottle will explode.





freezing	تجمد	accompanied	مصحوبة	explode	تنفجر

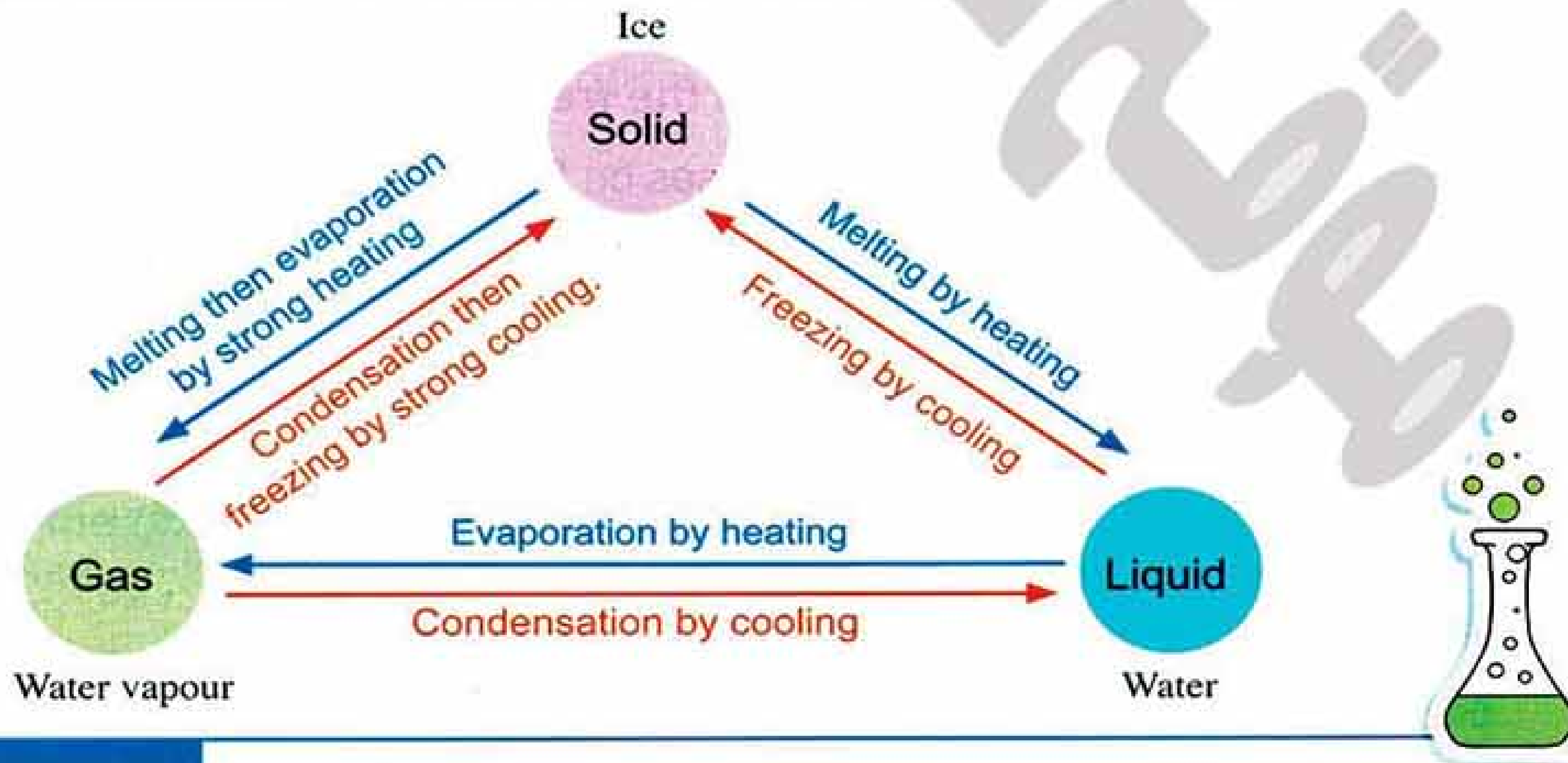


Remember

Comparison between the three states of matter :

State	Solids	Liquids	Gases
Volume:	Definite	Definite	Indefinite (take the volumes of their containers).
Shape:	Definite	Indefinite (take the shapes of their containers).	Indefinite (take the shapes of their containers).
Examples:	Iron - stone - ice.	Oil - alcohol - water.	Oxygen - nitrogen - water vapour.

- At the ordinary room temperature, matter exists in only one state.
- Cooling (decreasing the temperature) is accompanied by condensation and freezing.
- Heating (increasing the temperature) is accompanied by melting and evaporation.
- Melting is the opposite of freezing.
- Evaporation is the opposite of condensation.
- **All changes of matter can be explained by the following diagram :**





Questions on lesson two

Questions signed by 📖 have been taken from the school book.

1. Choose the correct answer :

1. All of these substances have definite shapes and volumes except ....
   a. iron. b. water. c. wood. d. sugar.
2. Iron, wood and gold are examples of .... matter.
   a. solid b. liquid c. gaseous d. (b) and (c)
3. Liquids take the .... of their containers.
   a. volumes only b. shapes only
   c. shapes and volumes d. colour
4. All of these matter have definite volumes and indefinite shapes except ....
   a. alcohol. b. gold. c. water. d. oil.
5. 📖 When we pour water from container (A) into (B), then into (C), we observe that the volume of water in container (A) is ....
   a. larger than (B). b. larger than (C).
   c. less than (B). d. equal to that in (B) and (C).
6. .... is the solid state of water.
   a. Alcohol b. Ice c. Water vapour d. Kerosene
7. .... is considered as one of the gases.
   a. Salt b. Wood c. Oxygen d. Alcohol
8. .... matter doesn't have a definite shape or volume.
   a. Solid b. Liquid
   c. Gaseous d. All the previous answers
9. Solids and liquids have definite ....
   a. shapes. b. volumes.
   c. shapes and volumes. d. textures.
10. .... are similar in having indefinite shapes.
    a. Solids and liquids b. Solids and gases
    c. Liquids and gases d. Liquids, solids and gases



11. Water vapour is an example of .... state of matter.
    a. gaseous b. liquid c. solid d. (a) and (c)
12. All the following substances have no definite shapes and volumes except ....
    a. air. b. oxygen. c. carbon dioxide. d. water.
13. The transfer of matter from the solid state into the liquid state is called .... process.
    a. condensation b. evaporation
    c. freezing d. melting
14. Gold industries need .... process.
    a. melting then cooling b. condensation then cooling
    c. evaporation then cooling d. cooling then melting
15. Which of the following substances can be melted ? ....
    a. Water. b. Ice. c. Oil. d. Water vapour.
16. The change of matter from the liquid state into the gaseous state is called ....
    a. freezing. b. condensation. c. evaporation. d. melting.
17. When water boils, it changes from ....
    a. the solid state into the liquid one.
    b. the liquid state into the gaseous one.
    c. the gaseous state into the solid one.
    d. the gaseous state into the liquid one.
18. On decreasing the temperature (cooling) of water vapour, it ....
    a. freezes. b. condenses. c. melts. d. evaporates.
19. The change of matter from the gaseous state to the liquid state is called ....
    a. freezing. b. evaporation. c. melting. d. condensation.
20. Decrease in temperature (cooling) is accompanied by .... process(es).
    a. melting b. condensation
    c. evaporation d. (a) and (b) together



21. The change of water into ice is accompanied by ....
   a. a decrease in volume.
   b. evaporation process.
   c. an increase in temperature.
   d. a decrease in temperature.

22. The change of the matter from liquid state to solid state is accompanied by ....
   a. an increase in heat.
   b. a decrease in heat.
   c. constancy of heat.
   d. an increase in mass.

2. Choose from group (B) what suits it in group (A) :

(A)	(B)
1. Change of matter from the liquid state to the gaseous state.	a. Melting.
2. Change of matter from the solid state to the liquid state.	b. Freezing.
3. Change of matter from the liquid state to the solid state.	c. Condensation.
4. Change of matter from the gaseous state to the liquid state.	d. Evaporation.

1. .... 2. .... 3. .... 4. ....

3. Put (✓) in front of the right statement and (×) in front of the wrong one, then correct it :

1. Copper, aluminium and kerosene are from the liquid substances. ( )
2. Iron and wood are from the solid substances. ( )
3. Solid substances have definite volumes and shapes. ( )
4. Gaseous substances always take the shapes and the volumes of their containers. ( )
5. Liquid matter have definite shapes and volumes. ( )
6. Each component of air takes the shape and the volume of its container. ( )
7. Condensation is a process of changing the matter from the liquid state to the gaseous state. ( )
8. Ice is changed into water by cooling. ( )
9. Freezing is the change of matter from solid state to liquid state. ( )
10. Water vapour is the liquid state of water. ( )
11. On decreasing the temperature of water vapour, it condenses. ( )



12. Evaporation is the change of water into water vapour. ( )
13. Appearance of some water droplets on the leaves of plants and cars in the early morning is due to the condensation process. ( )

4. Write the scientific term of each of the following :

1. A state of matter that has a definite volume and shape. (.................)
2. A state of matter that has an indefinite shape and volume. (.................)
3. The matter that is characterized by having a definite volume, but it doesn't have a definite shape. (.................)
4. The substances that take the shapes and the volumes of their containers. (.................)
5. Matter characterized by having a definite volume and takes the shape of its container. (.................)
6. The states of matter that don't have definite shapes. (.................)
7. 📖 A change of matter from the liquid state to the solid state by cooling. (.................)
8. Transformation of matter from the liquid state to the gaseous state by heating. (.................)
9. 📖 A change of matter from the gaseous state to the liquid state by cooling. (.................)
10. A state of matter whose volume and shape change according to the shape of its container. (.................)
11. A change of matter from the solid state to the liquid state by heating. (.................)
12. The transfer of ice into water by heating. (.................)
13. The change of water into water vapour. (.................)
14. The transfer of water into ice by cooling. (.................)

5. Complete the following statements :

1. 📖 States of matter are ...., ... and ....
2. Iron and .... are examples of the solid matter, but water is an example of .... matter.
3. In the .... matter, the volume and shape don't change.
4. At the ordinary temperature, iron is in a .... state.
5. Water is a matter in .... state, while water vapour is a matter in .... state.
6. 📖 The .... substances have definite shapes and volumes.
7. 📖 Matter that takes the shape of its container, but its volume doesn't change is ....



8. On transferring water from one container to another, its .... will change.
9. Both liquids and gases have no definite ....
10. Water has .... volume and .... shape.
11. Air is a .... matter, because it hasn't a definite .... and volume.
12. Matter can be pressed in case of .... state.
13. Water exists in the .... state at room temperature.
14. Matter changes from one state to another by the effect of .... or ....
15. Ice is the .... state of water, while .... is the gaseous state of water.
16. Ice can be changed into water by ....
17. Melting is the change of matter from .... state to .... state by heating.
18. The change of ice into water is considered as a .... process.
19. The transfer of matter from the liquid state to the gaseous state is called ....
20. Increasing the temperature of water to the boiling point changes water into ....
21. Water vapour condenses if it touches a .... surface
22. Condensation is the change of matter from the .... state to the .... state.
23. Water vapour changes into .... by ....
24. Water can be changed from the liquid state to the solid state by .... and this process is called ....
25. If a liquid freezes, it becomes in a .... state
26. The continuity of decreasing water temperature changes it from the .... state to the .... state.

6. Correct the underlined words :

1. Milk has a definite volume and a <u>definite shape</u>. (..................)
2. Oxygen gas has <u>a definite</u> shape and a volume. (..................)
3. <u>Solids</u> are changing their shapes and volumes according to their containers. (..................)

4. When water freezes, it changes into water vapour. (..................)
5. Melting is the transformation of matter from the liquid state to the gaseous state. (..................)
6. Condensation is the change of matter from the liquid state to the solid state. (..................)
7. The appearance of some water drops on the leaves of plants and cars is due to the evaporation process. (..................)

7. Give reasons for the following :

1. Salt is a solid matter, while oil is a liquid matter.
....
....
2. Air is a gaseous matter.
....
3. The shape of water inside the cylindrical container differs from its shape inside the conical container.
....
4. Wood has a definite shape and volume.
....
5. On putting a mixture of gravels and water in a refinery with minute holes, water passes, while gravels remain in the refinery.
....
....
6. Oxygen has indefinite shape and volume.
....
7. When ice is exposed to air, it changes into water.
....
8. On making tea, water drops are formed on the cover of a teapot from inside.
....
9. Water freezes when it is put in the freezer.
....
10. Formation of water drops on the outer surface of a bottle filled with ice.
....
11. Gaseous matter is compressed and packed in cylinders.
....



12. A piece of copper has a definite shape when we carry it from a vessel (container) to another one.

....

13. The glass bottle which is put in the freezer of the refrigerator shouldn't be full of water.

....

8. What happens in the following cases :

1. You put an amount of water in a glass container.

....

2. When you put three equal amounts of water in three different containers.

....

3. When you blow air in different balloons.

....

....

4. When you put pieces of ice in a pan, then heat.

....

5. Boiling water and exposing the water vapour to a cold surface.

....

6. When a bottle of water is put in the freezer.

....

7. If we leave a glass filled with ice in air for few minutes.

....

8. Putting a bottle full of water in the freezer for 24 hours.

....

9. What is meant by ...?

1. Melting.

....

2. Evaporation.

....

3. Condensation.

....



4. Freezing.

....

10. Compare between :

1. Liquid, solid and gaseous states of matter.

....
....
....

2. Melting process and evaporation process.

....
....
....

3. Condensation process and freezing process.

....
....
....

11. Name the process that takes place when :

1. Steam (water vapour) touches a cold window. (..................)
2. Pieces of ice change into water. (..................)
3. Butter cubes are heated. (..................)
4. A bottle of water is put in the freezer. (..................)

12. Classify the following materials in the following table into solids, liquids and gases :

Oil - Table salt - Sugar - Kerosene - Mercury - Air - Water - Iron pieces - Oxygen - Ice - Water vapour.

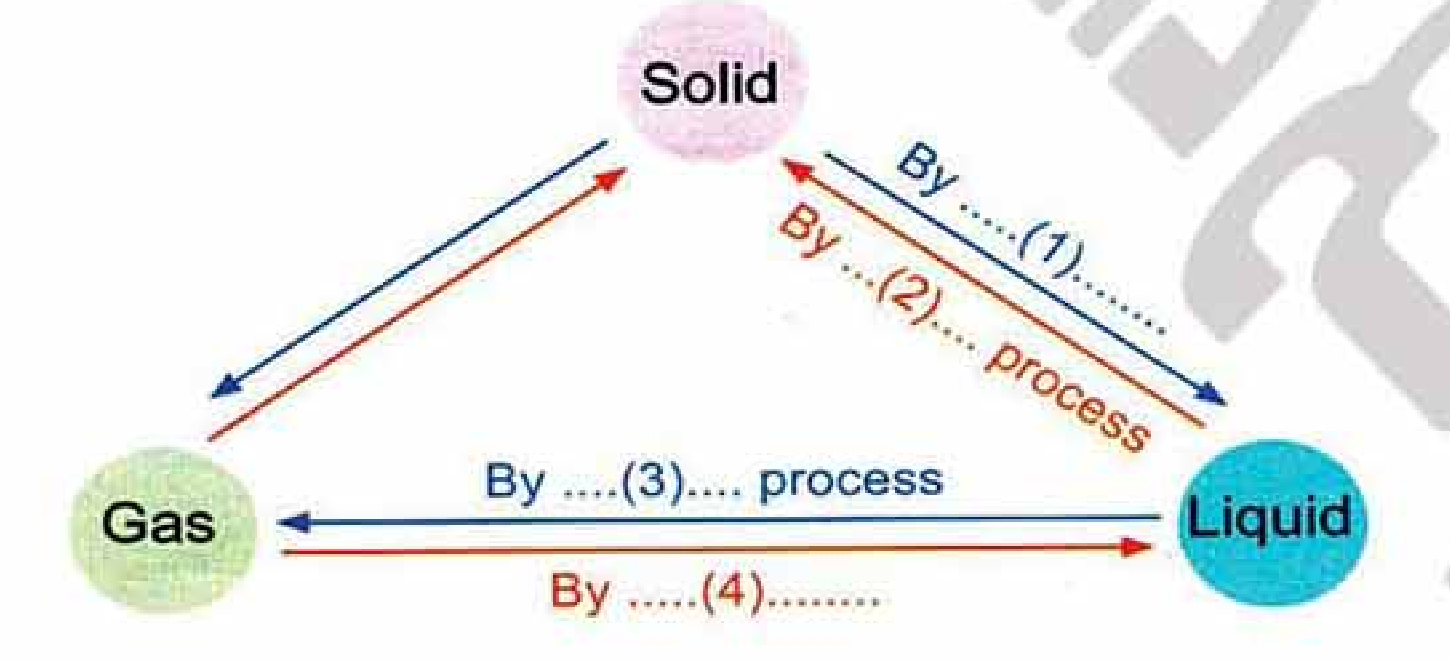
Solids	*Liquids*	*Gases*
....	....	....
....	....	....
....	....	....
....	....	....

13. Which of the following matter has a definite shape ? Why ?



1.Wood
2. Air
3. A piece of stone
4. Oxygen gas
5. Oil
6. Cooking pot

14. Complete the words in the following diagram :





Timss Questions

1. Read the following table carefully then choose the correct answer :

State A	State B	State C
• Can be poured. • Has definite volume. • Takes the shape of its container.	• Can spread in air. • Has indefinite volume. • Takes the shape of its container.	• You can hold it with your hand. • Has definite volume. • Has definite shape.

a. State **A** is solid, state **B** is liquid and state **C** is gaseous.

b. State **A** is gaseous, state **B** is solid and state **C** is liquid.

c. State **A** is liquid, state **B** is gaseous and state **C** is solid.

d. State **A** is liquid, state **B** is solid and state **C** is gaseous.

2. During freezing, melting and evaporation, water changes from one state to another state.

Heat needs to be supplied for which of these processes to take place ?

a. Evaporation only.

b. Melting only.

c. Melting and freezing but not evaporation.

d. Melting and evaporation but not freezing.

3. Water, ice, and steam (water vapour) all have different temperatures.

What is the order from coldest to hottest ?

a. Ice, water, water vapour

b. Ice, water vapour, water

c. Water vapour, ice, water

d. Water vapour, water, ice

4. Ice-cold water was placed in a glass on a hot day (Fig. 1).
Soon afterwards, liquid appeared on the outside of the glass (Fig. 2).
Describe the process that caused the liquid to appear on the outside of the glass.


Fig. 1


Fig. 2

....

....

5. By boiling an amount of water in a pot, What will be happened to the water mass and volume after a period of time? ....

a. Mass will increase and volume decrease.
b. Mass will decrease and volume decrease.
c. Mass will decrease and volume increase.
d. Mass will increase and volume increase.





3 LESSON
Elements around us



Do you think that we can extract any other substance like gold or aluminium from these iron nails ?

- *Of course not, because these nails consist of iron only which can't be decomposed into two or more other substances.*

So, we can say that iron is an Element.

Element :

It is the simplest form of matter that can't be analyzed (decomposed) into two substances or more.

Examples :



Matter	Element that composes it
• Nails.	• Iron element.
• Spoon.	• Aluminium element.

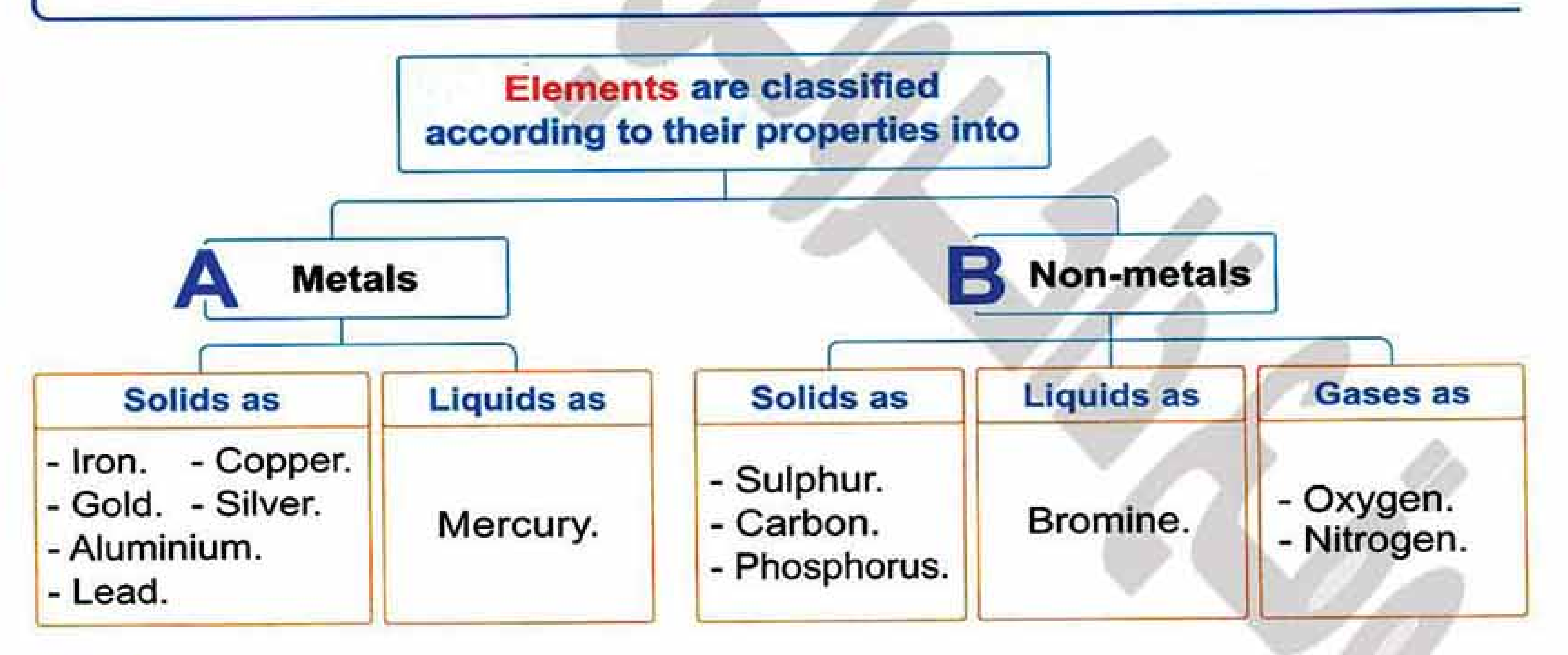
element	عنصر	extract	يستخلص	simplest	أبسط
aluminium	الومنيوم	analyzed (decomposed)	تحلل	iron	حديد



 • Coal.	• Carbon element.
 • Electric wire.	• Copper element.

Read and learn :

- Scientists have discovered 118 elements up till now which are divided into :
  - Natural elements : They are 92 elements.
  - Artificial (synthesis) elements : They are 26 elements.
- Elements are composed of small particles known as molecules which are composed of atoms.
- Element molecules are formed of similar atoms that are different from those of other elements.



Now, we will study :

- **The properties of metals and non-metals.**
- **The economic importance of some metals and non-metals.**

synthesis	مُخلقة	artificial elements	عناصر صناعية	natural elements	عناصر طبيعية
atoms	ذرات	molecules	جُزيئات	classified	صَنَّف
metals	فلزات	non-metals	لافلزات	economic importance	الأهمية الإقتصادية
lead	رصاص	coal	فحم	electric wire	سلك كهربى
copper	نحاس				

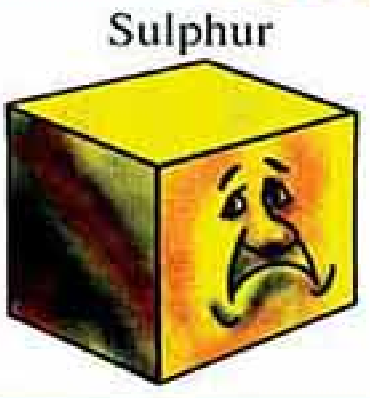
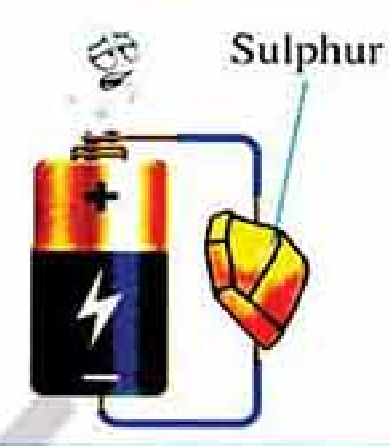




Unit 1

The properties of metals and non-metals.



	Metals		Non-metals
1	Gold  Metals are shiny (have metallic luster).	but	Sulphur  Non-metals are not shiny (don't have metallic luster).
2	 Copper coin. Metals are good conductors of electricity.	but	 Sulphur. Non-metals are bad conductors of electricity except carbon.
3	 Aluminium pot. Metals are good conductors of heat.	but	 Carbon. Non-metals are bad conductors of heat.
4	Iron nails. Metals have high melting and boiling points.	but	 Sulphur. Non-metals have low melting and boiling points.
5	Metals are malleable (can be bent).	but	 Non-metals are not malleable (cannot be bent).

good conductor	موصل جيد	melting point	درجة إنصهار	malleable	قابل للثنى
boiling point	درجة غليان	bent	ينثنى	metallic luster	بريق معدنى.
shiny	لامع	coin	عُملة		





To prove the shining property of metals.

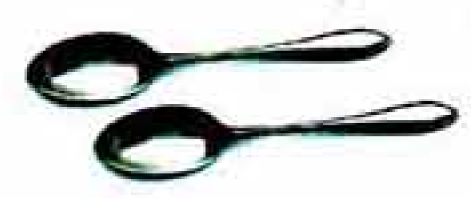
Steps:

1. Bring samples of different elements such as :


Sulphur crystals


New iron nails


Copper lock


Aluminium spoons


Pieces of coal (carbon)

2. Examine which of them is shiny and which is not shiny.

Observation:

The new iron nails, copper lock and aluminium spoons are shiny, but coal and sulphur are not shiny.

Conclusion:

Metals are shiny (have metallic luster) if they are pure, but non-metals are not shiny (don't have metallic luster).

Activity 2 To show the ability of metals and non-metals to conduct electricity.

Steps	Figures	Observations
1. Form an electric circuit by connecting a graphite rod of a pencil to the circuit. (Graphite rod is made of carbon).	A graphite rod	- The electric lamp lights.
2. Repeat the previous step replacing the graphite rod with :		

ability قابلية
replacing مُستبدلاً
samples عينات
lights يُضئ
lock قفل
graphite rod ساق من الجرافيت
electric circuit دائرة كهربية



Steps	Figures	Observations
a. A fork or a piece of foil which is made of aluminium.		- The electric lamp lights.
b. A coin which is made of copper.		- The electric lamp lights.
c. A piece of sulphur.		- The electric lamp doesn't light.

Conclusions:

1. Metals (as aluminium, copper and iron) are good conductors of electricity.
2. Non-metals (as sulphur) are bad conductors of electricity except carbon which is a good conductor of electricity.

G.R.

- **Electric wires are made of copper.**
  Because copper is a good conductor of electricity.
- **We mustn't approach a nail to an electric source.**
  Because the nail is made of iron which is a good conductor of electricity as it is a metal.

electric source مصدر كهربى approach يقرب





Activity 3 To show the ability of metals and non-metals to conduct heat.

Steps:

1. Bring bars of iron, copper, aluminium and carbon.
2. Put a piece of wax at one end of each bar and expose the other end to the flame of a candle for sometimes.

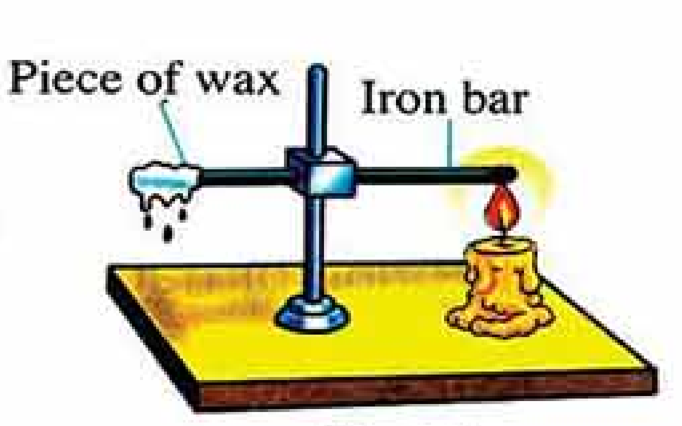


Fig. (A)

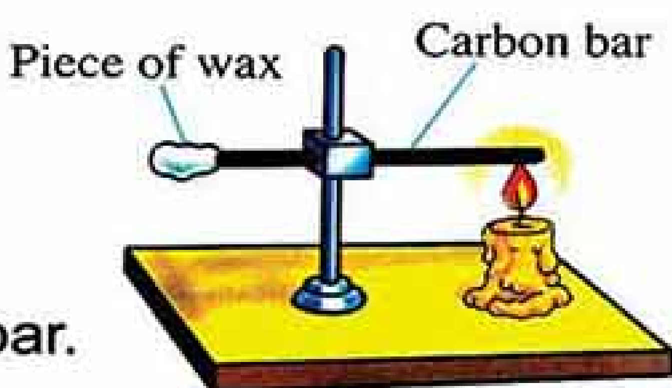


Fig. (B)

Observations:

1. The piece of wax melts at different periods of time in case of iron, copper and aluminium bars.
2. The piece of wax doesn't melt in case of carbon bar.

Conclusion:

Metals are good conductors of heat, while non-metals are bad conductors of heat.



Activity 4 To show the ability of metals and non-metals to be melted.

Steps:

1. Bring samples of iron nails, copper wires and sulphur crystals.
2. Heat each sample by using a flame.



Fig. (A)



Fig. (B)

Observation:

The iron nails and copper wires don't melt, but the sulphur crystals melt easily.

Conclusion:

Metals have high melting points, but non-metals have low melting points.

bar قضيب	wax شمع	flame لهب	





Unit 1

Activity 5 To show the ability of metals and non-metals to be shaped (bent or malleable).

Steps	Figures	Observations
Try to bend or hammer on : - A copper wire. - A piece of coal (carbon). - Sulphur crystals. - An iron nail and an aluminium wire.		- The copper wire, iron nail and aluminium wire can be bent (ductile) or hammered. - Sulphur crystals and the piece of coal cannot be bent or hammered.



Conclusion:

Metals can be bent (are ductile or malleable), while non-metals cannot.



G.R.

Aluminium can be bent or hammered, but a piece of coal cannot.
Because aluminium is a metal, but coal is a non-metal.

Read and learn :

- Gold, silver and platinium are flexible elements, so copper is added to them to be ductile easily to make jewels.
- Aluminium metal is used in making aluminium foil which is used in wrapping up (covering) chocolate and sweets as it can be bent and hammered.



hammer on يطرق على	ductile	قابل للطرق
wrapping up تغليف	flexible	لين



The economic importance (life applications) of some metals and non-metals

Element	Kind	Importance (uses)
Iron	Metal	It is used in making : Bridges, Car chassis (car frames), Doors, Street lights (lamp posts)
Aluminium	Metal	It is used in the manufacture of : Cooking pans, Foil paper, Doorknobs
Gold and silver	Metals	They are used in making : Jewellery
Copper	Metal	It is used in making : Electric wires, Statues, Metallic coins

life applications	تطبيقات حياتية	bridge	كوبرى	doorknob	مقبض الباب
lamp post	عامود النور	car chassis	اجسام السيارات	statues	تماثيل


Unit 1

Element	Kind	Importance (uses)
Carbon (graphite)	Non-metal	It is used in the manufacture of positive electrodes (poles) of dry cells (batteries). Dry cells (batteries)



Car chassis and bridges are made of metals not from non-metals.
Because metals can be bent or hammered to form sheets, but non-metals cannot.



Read and learn :

- The Ancient Egyptians used silver, gold and copper 3000 B.C.
- Some metals have magnetic property such as iron, cobalt and nickel.
- Mercury is used in the manufacture of thermometers.
- Jaber Ibn Hyan is an Arabic scientist who introduced the experimental researches in chemistry and discovered acids and alkalis.
- Berzelius is a foreign scientist who discovered rubber tubes and some tools used in laboratory.



English	Arabic	English	Arabic
dry batteries	البطاريات الجافة	magnetic property	الخاصية المغناطيسية
B.C.	قبل الميلاد	introduce	يُقدم
thermometers	الترمومترات	rubber tubes	أنابيب مطاطية
experimental researches	أبحاث تجريبية	acids	أحماض
positive electrode	القطب الموجب	alkalis	قلويات





Comparison between metals and non-metals :

Points of comparison	Metals	Non-metals
1. Luster (shining) :	They have metallic luster (are shiny) if they are pure.	They don't have metallic luster (are not shiny).
2. Malleability and ductility :	They are malleable and ductile (can be hammered to form sheets).	They are not malleable or ductile (can't be hammered).
3. Conductivity of heat :	They are good conductors of heat.	They are bad conductors of heat.
4. Conductivity of electricity :	They are good conductors of electricity.	They are bad conductors of electricity except carbon.
5. Melting and boiling points :	They have high melting and boiling points.	They have low melting and boiling points.
6. The state at room temperature :	They are solids except mercury which is a liquid.	They are : - Solids as sulphur, carbon and phosphorus. - Liquids as bromine. - Gases as oxygen and nitrogen.

- **Iron** ***(metal)*** is used in making bridges, car chassis (car frames), doors and street lights (lamp posts).
- **Aluminium** ***(metal)*** is used in the manufacture of cooking pans, foil paper and some doorknobs.
- **Gold and silver** ***(metals)*** are used in making jewellery.
- **Copper** ***(metal)*** is used in making electric wires, statues and metallic coins.
- **Carbon (graphite)** ***(non-metal)*** is used in the manufacture of positive electrodes (poles) of dry cells (batteries).



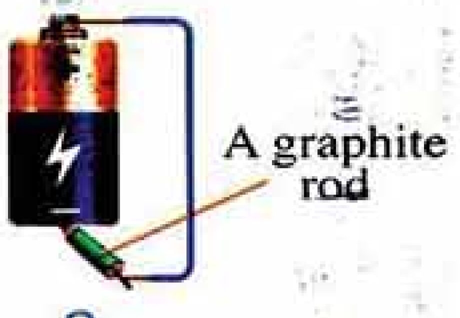


Questions signed by 📖 have been taken from the school book.

Questions on lesson three

1. Choose the correct answer :

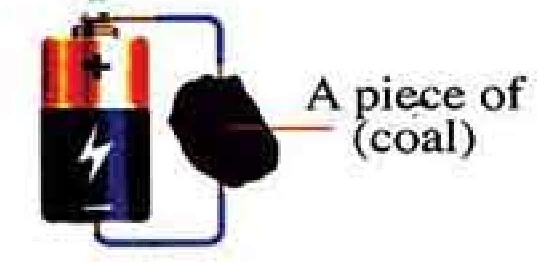
1. .... is the simplest form of matter that can't be decomposed into two substances or more.
   a. Element b. Metal c. Non-metal d. Compound
2. All the following are metals except ....
   a. copper. b. carbon. c. iron. d. aluminium.
3. Iron and copper are considered ....
   a. solid metals. b. liquid non-metals.
   c. gaseous non-metals. d. liquid metals.
4. 📖 .... is an example of non-metals.
   a. Copper b. Carbon c. Aluminium d. Iron
5. At the room temperature, all metals are in the solid state except ....
   a. iron. b. copper. c. lead. d. mercury.
6. 📖 .... is from non-metals that is found in liquid state at room temperature.
   a. Iron b. Bromine c. Copper d. Mercury
7. .... is a gaseous non-metal.
   a. Bromine b. Oxygen c. Copper d. Iron
8. Non-metals exist in ....
   a. solid state. b. liquid state. c. gaseous state. d. (a),(b) and (c).
9. All the following substances have metallic luster except ....
   a. iron. b. copper. c. sulphur. d. gold.
10. All the following elements are good conductors of electricity except ....
    a. carbon. b. iron. c. sulphur. d. copper.
11. Which lamp in the following electric circuits will not light ? ....



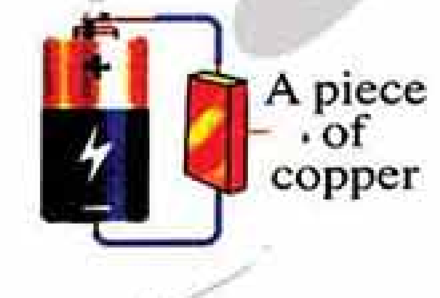
a.



b.



c.



d.

12. Which of the following elements is a good conductor of heat and electricity ? ....
    a. Carbon. b. Oxygen. c. Iron. d. Sulphur.

13. .... is a bad heat conductor.
    a. Bromine b. Aluminium c. Iron d. Copper

14. The foil paper that is used in wrapping up chocolate shows the ....
    a. electrical conductivity of metals.
    b. ability of metals for melting.
    c. malleability or ductility.
    d. heat conductivity of metals.

15. The melting points of the following elements are high except ....
    a. silver. b. aluminium. c. copper. d. phosphorus.

16. All the following substances can be bent or hammered except ....
    a. phosphorus. b. silver. c. copper. d. iron.

17. Sulphur is a non-metal, because ....
    a. it is shiny. b. it has a high melting point.
    c. it can be bent or shaped.
    d. it is a bad conductor of heat and electricity.

18. Carbon ....
    a. is a good conductor of heat.
    b. is malleable or ductile.
    c. is a good conductor of electricity.
    d. (a),(b) and (c).

19. Gold and silver are used in manufacturing ....
    a. bridges. b. planes. c. jewels. d. cooking pots.

20. .... is used in making bridges and car chassis.
    a. Carbon b. Iron c. Copper d. Aluminium

21. The car frames are shaped from iron, because it ....
    a. is a good conductor of heat. b. is malleable and ductile.
    c. has metallic luster. d. has a high melting point.



22. .... is a non-metal which is used in making the positive poles of the dry cells.
   a. Copper   b. Nitrogen   c. Carbon   d. Sulphur
23. Cooking pots are made up of ....
   a. graphite.   b. wood.   c. aluminium.   d. sulphur.
24. Statues are made up of ....
   a. carbon.   b. aluminium.   c. sulphur.   d. copper.
25. Electric wires are made up of ....
   a. sulphur.   b. carbon.   c. copper.   d. gold.

2. Put (✓) in front of the right statement and (×) in front of the wrong one, then correct it :

1. Metals are the simplest form of matter. ( )
2. Iron, aluminium and copper are non-metals. ( )
3. All metals have metallic luster, but non-metals do not have. ( )
4. All solid non-metals are unductile elements. ( )
5. Nitrogen and oxygen are gaseous non-metals. ( )
6. All non-metals are bad conductors of electricity. ( )
7. Carbon is a metallic element that is a good conductor of electricity. ( )
8. The melting points of all metals are relatively high. ( )
9. Metals have low melting and boiling points, but non-metals have high melting and boiling points. ( )
10. Both iron and sulphur melt at the same temperature. ( )
11. All metals are solids at the room temperature except bromine. ( )
12. Carbon and sulphur have no luster. ( )
13. Mercury is a liquid non-metal, while bromine is a liquid metal. ( )
14. Copper is used in making electric wires. ( )
15. Aluminium is used in making bridges and car chassis. ( )
16. The positive pole of the dry cell is made of a metallic element which is carbon. ( )
17. Aluminium is used in making foil, while carbon is used in making statues. ( )



3. Write the scientific term of each of the following :

1. Elements that have metallic luster and have the ability to conduct electricity. (..................)
2. Elements that haven't metallic luster and are bad conductors of heat. (..................)
3. It is the simplest form of matter that can't be decomposed into two substances or more. (..................)
4. Elements that cannot be bent or pulled into the shape of wires. (..................)
5. Elements that are hammered to form sheets. (..................)
6. Elements have low melting and boiling points. (..................)
7. Elements which are bad heat conductors. (..................)
8. A liquid is non-metal. (..................)
9. The only liquid metal at room temperature. (..................)
10. A non-metal that has the ability to conduct electricity. (..................)
11. A metallic element that is used in making car frames, bridges and street lights. (..................)
12. A metallic element that is used in making doorknobs and cooking pans. (..................)
13. A non-metal that is used to make the positive pole of the dry cell. (..................)
14. The elements that have metallic luster, are good conductors of heat and electricity, have high melting points, malleable and ductile and all of them are solids except mercury which is liquid. (..................)
15. Elements that don't have metallic luster, are bad conductors of electricity except carbon (graphite), are bad conductors of heat, have low melting points and are not malleable. (..................)
16. A metallic element used in making statues and metallic coins. (..................)
17. An element that is used in making jewellery. (..................)
18. An element that is used in manufacturing of foil paper. (..................)

4. Complete the following statements :

1. .... is the substance that can't be decomposed into two substances or more.
2. Elements are classified into .... and ....
3. At the room temperature, all metals are solids except .... which is ....

Unit 1

4. Carbon and .... are solid non-metals, while oxygen and .... are gaseous non-metals.
5. .... is a liquid non-metal, whereas .... is a liquid metal.
6. Iron is considered as a solid .... , while sulphur is a solid ....
7. The group of .... has metallic luster, but the group of .... doesn't have.
8. Silver is a shiny element, so it belongs to .... , while sulphur is an element that doesn't have metallic luster, so it belongs to ....
9. Metals are .... conductors of electricity, but .... are bad conductors of electricity except ....
10. .... is a good conductor of electricity, while sulphur is ....
11. Sulphur is a .... conductor of heat, while iron is a .... conductor of heat.
12. Graphite is from .... elements and it is a good conductor of ....
13. Metals are good conductors of .... and ....
14. Metals have .... melting points, while non-metals have .... melting points.
15. The melting point of sulphur is .... than the melting point of aluminium.
16. .... have the ability to be re-shaped, but .... have not.
17. Metals have .... boiling points, but .... have low boiling points.
18. The positive poles of the dry cells are made up of .... element.
19. Cooking pots are made of ....
20. We use .... and .... in the manufacturing of jewels, but we use .... in manufacturing bridges.
21. Copper is used in manufacturing .... , ... and ....
22. .... is used in making bridges, while .... is used in making electrodes of batteries.
23. .... is used in making foil paper, but metallic coins are made up of ....

5. Complete the following sentences by using these words :

(metals – iron – non-metals – gold – carbon)

1. We use .... in manufacturing of jewels.
2. We use .... in manufacturing of bridges.



3. The positive poles of the electric cells are made of ....
4. A group of elements that has metallic luster is known as ....
5. A group of elements that doesn't have metallic luster is known as ....

6. Give reasons for the following :

1. Iron and copper are metals.
....
....
2. Sulphur is considered as a non-metal.
....
....
3. Gold and silver are used in making jewellery.
....
4. Copper is used in the manufacture of electric wires.
....
5. Iron, copper and aluminium are good conductors of heat.
....
6. Aluminium can be bent or hammered, but the piece of coal cannot.
....
7. Cooking pans are made up of aluminium.
....
8. Carbon (Graphite) is used in making the electrodes (poles) of dry cell although it is a non-metal.
....
9. Aluminium is considered as a metal, but bromine is a non-metal.
....
....
10. We mustn't approach a nail to an electric source.
....
11. The melting point of an iron nail is higher than that of the sulphur crystals.
....
12. Copper is used in making statues and metallic coins.
....

13. Car chassis and bridges are made of metals not of non-metals.

14. Iron is used in making lamp posts.

7. What happens if ...?

1. You connect a graphite rod of a pencil with a circuit having an electric lamp and why ?
2. You put a piece of wax at one end of a sulphur bar and expose the other end to a candle flame and why ?
3. You heat a piece of copper and some crystals of sulphur to high temperature.
4. You fix a piece of wax at one end of an iron bar and expose the other end to a candle flame and why ?

8. Compare between metals and non-metals.

9. Mention one use of each of the following :

1. Iron.
2. Aluminium.
3. Gold and silver.
4. Copper.
5. Carbon (Graphite).

10. You have an unknown element. How can you know it is a metal or a non-metal by using two different methods ?

....

....

....

....

11. Look at the following figures which represent three electric circuits, then answer :



Fig. (A)



Fig. (B)

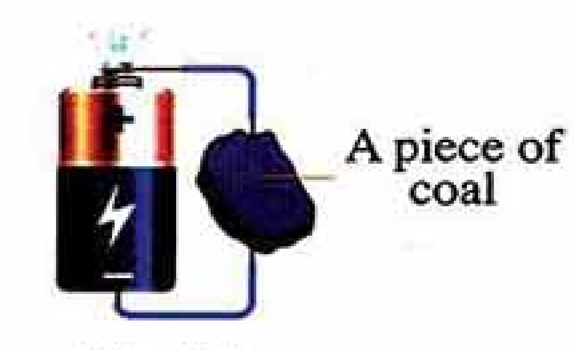


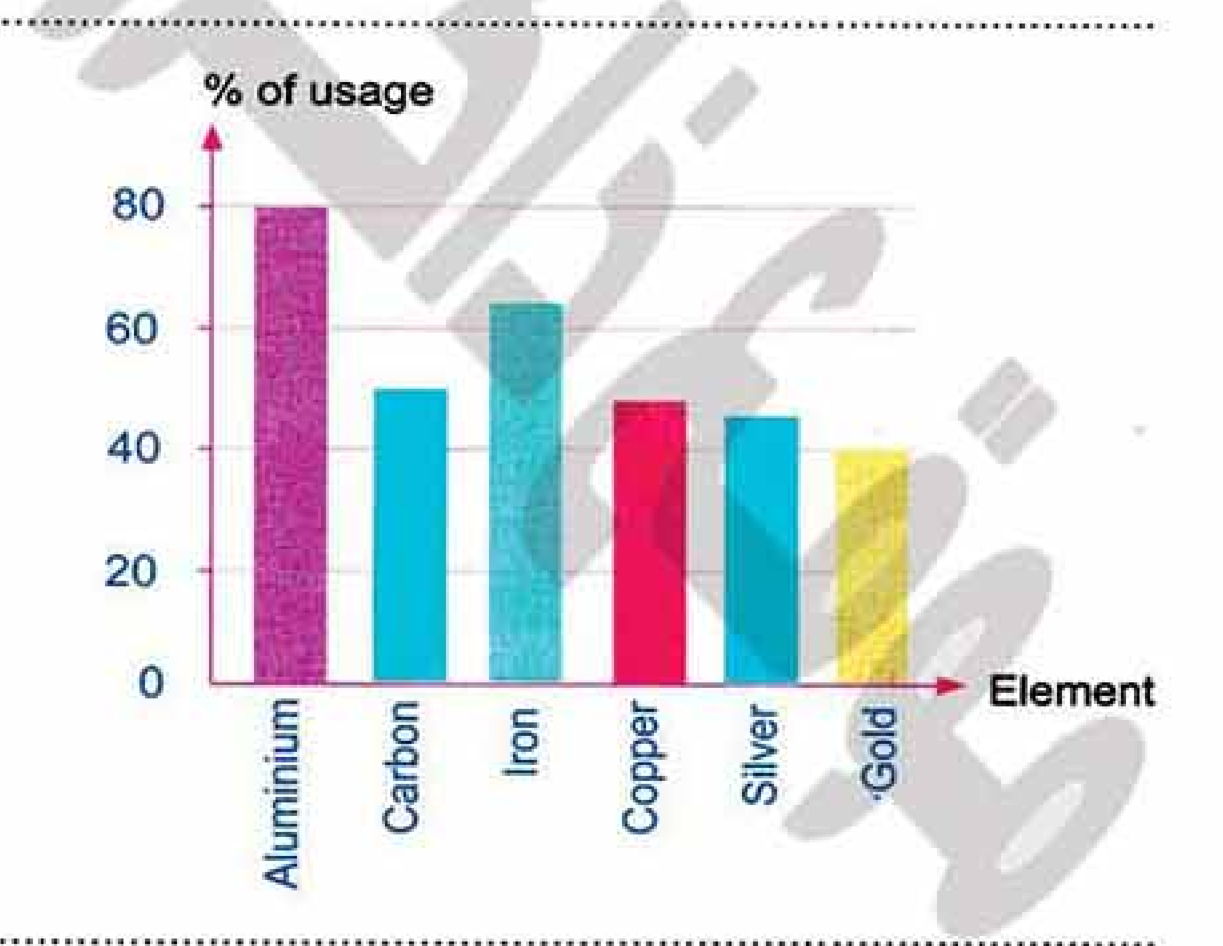
Fig. (C)

Which lamp(s) will light and which will not ? (Giving reasons)

....

....

12. One of the researchers does a study about marketing rates and elements usage at a certain period, and he draws the following graph.



Mention :

1. The most used element in this graph and its uses.

....

2. The least used element in this graph and its uses.

....





Timss Questions

1. The table below shows the properties of two materials :

Properties of Material (1)	Properties of Material (2)
- Solid. - Conducts electricity. - Conducts heat. - Has metallic luster.	- Solid. - Conducts electricity. - Does not conduct heat. - Does not have metallic luster.

Which statement about materials (1) and (2) is most likely to be correct ?

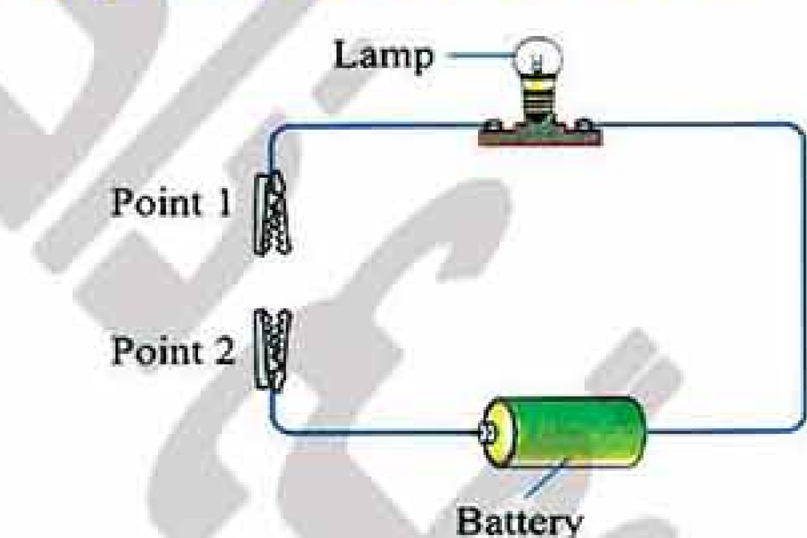
a. Material (1) is sulphur and material (2) is iron.

b. Material (1) is copper and material (2) is aluminium.

c. Material (1) is aluminium and material (2) is carbon.

d. Material (1) is carbon and material (2) is sulphur.

2. The following picture shows a lamp connected to a battery in an electrical circuit. Which of the following objects connected to points 1 and 2 will allow the bulb to glow ?



a. Iron nail.

b. Plastic spoon.

c. Rubber band.

d. Wooden stick.

3. Amir is given a sample of an unknown solid substance. He wants to know if the substance is a metal or not. Write down one property he can observe or measure and describe how this property could be used to help identify whether the substance is a metal or not.

....

....



4. You have two pencils, one of them has a complete graphite rod, while the other has a broken one. By using a copper wire, an electric bulb (lamp) and a dry cell, show which pencil has a broken graphite rod.

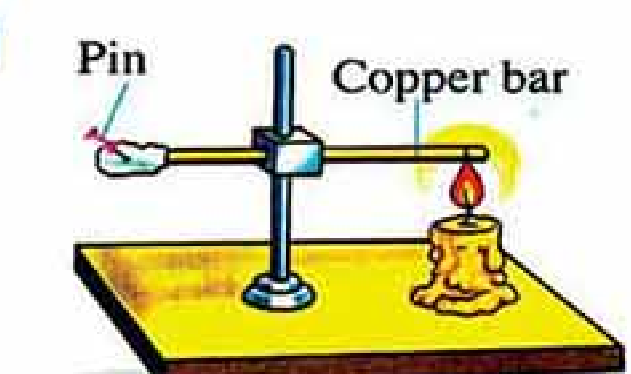


....

....

....

5. Look at the opposite picture then answer the following questions :



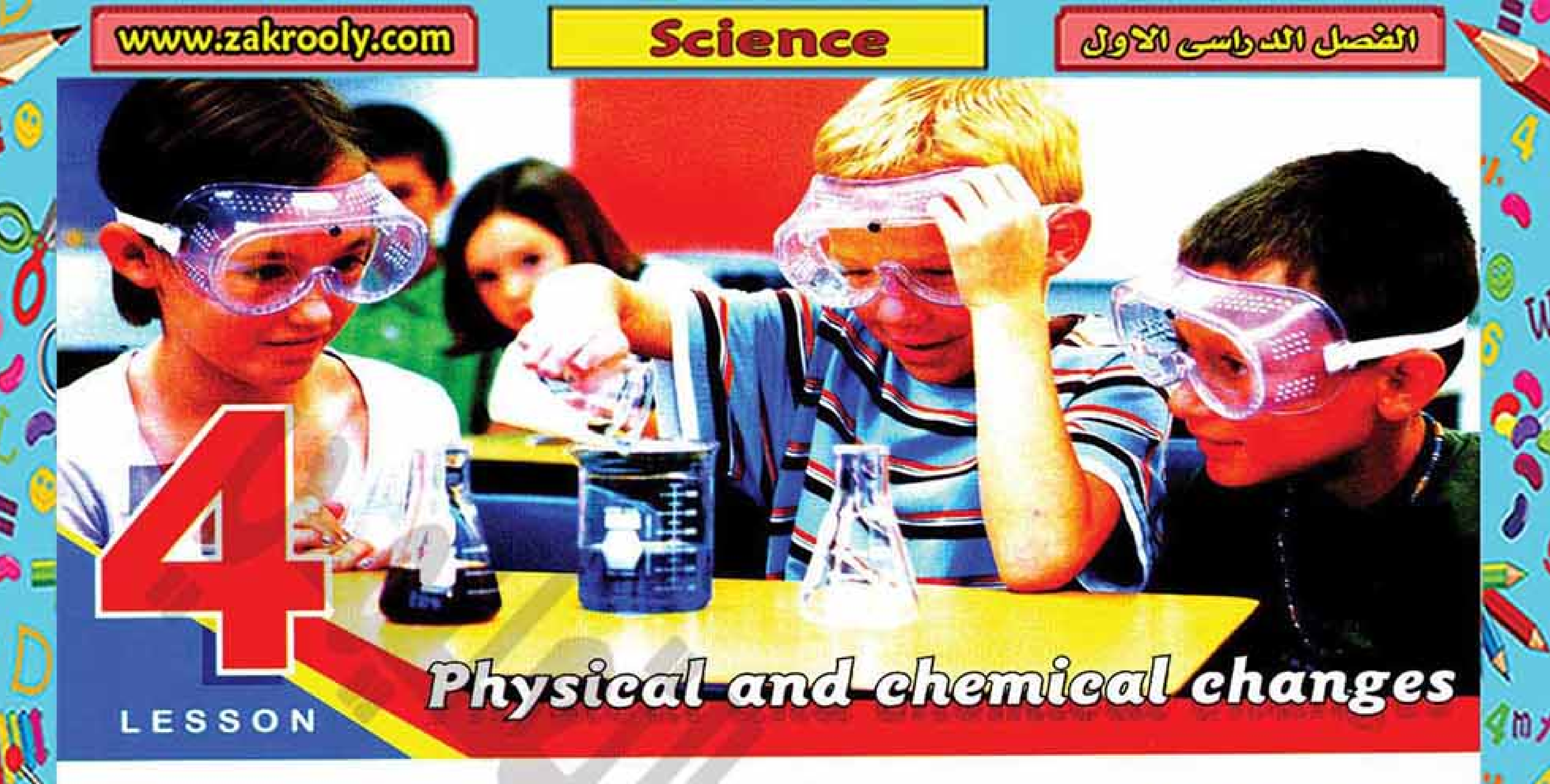
a. What happen to the pin after sometime ?

....

b. What do you conclude from this activity ?

....





There are two types of changes that may occur to matter :



If you cut a paper into pieces, its shape only changes.

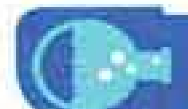
So, we can say that it is a physical change.



If you burn a paper, its shape and structure change.

So, we can say that it is a chemical change.

Now, we are going to study physical change and chemical change of matter by showing some examples on each type of them.



Physical change of matter





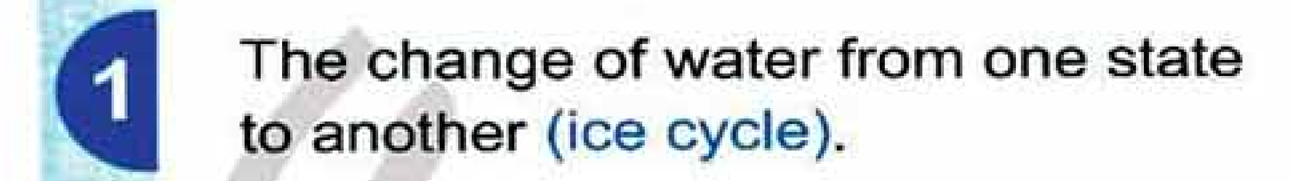
Physical change

It is a change in the appearance (shape) of matter without any change in its structure (properties).

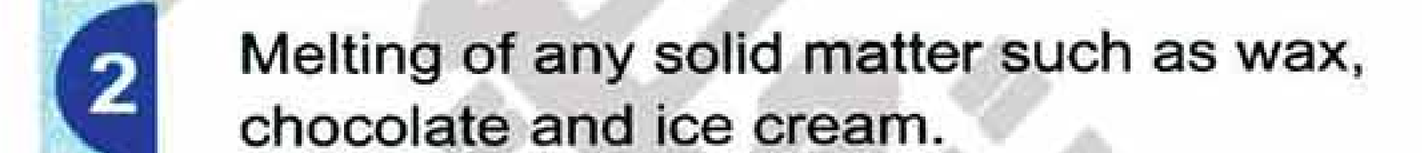
physical change	تغير فيزيائى	chemical change	تغير كيميائى
structure	تركيب	occur	يحدث
appearance	مظهر		



Examples :



1. The change of water from one state to another (ice cycle).





2. Melting of any solid matter such as wax, chocolate and ice cream.





3. Grinding of sugar or chalk into powder.





4. Dissolving (dissolution) of table salt or sugar in water.



5. Malleability (ductility) of elements to form sheets or wires (bending of elements).

6. Cutting paper into small pieces and paper recycling.

ice cycle	دورة الثلج	grinding	طحن
dissolving / dissolution	ذوبان	chalk	طباشير
recycling	إعادة تصنيع	malleability	ثنى



Activity 1 To prove that ice cycle is a physical change.

Steps:	Figures:	Observations:
1. Put a beaker full of ice over a flame.	Water, Ice, flame	- Ice melts and changes into water.
2. Continuous heating the previous beaker.	Water vapour, flame	- Water boils producing water vapour.
3. Put a cold glass sheet over the beaker.	Cold glass sheet, Water vapour, Water drops	- Water vapour condenses and changes into water drops again.
4. Put the assembled water in the freezer for some time.		- Water changes into ice.

Conclusion:

Change of water from one state to another (melting, evaporation, condensation and freezing) is a physical change as the shape of water changes, but its structure doesn't change.

assembled المتجمع continue إستمر glass sheet لوح زجاجى



Activity 2 To prove that melting of wax (candle) is a physical change.

Step:

Fix a burning candle on a plate.



Observation:

The wax melts and changes into liquid drops, then this liquid solidifies again.

Conclusion:

Melting of wax is a physical change as the appearance (shape) of wax changes, but its structure doesn't change.

Activity 3 To prove that grinding of sugar is a physical change.

Steps:

1. Take a sugar cube and taste its flavour.
2. Grind the sugar cube by a mortar, then taste it again.



Sugar



Mortar

Observation:

The sweety taste of sugar cube doesn't change after grinding, but its shape changes into fine powder.

Conclusion:

Grinding of sugar is a physical change as the appearance (shape) of sugar changes, but its structure (properties) doesn't change.

G.R.

A sugar cube keeps its sweety taste after grinding it.

Because grinding of sugar is a physical change, so its shape changes, but its structure doesn't change.

plate	طبق	solidifies	يصبح صلب	flavour	مذاق		
taste	يتذوق	mortar	جُرن / هاون	fine powder	بودرة ناعمة		





Unit 1

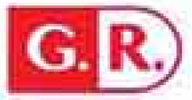


Activity 4 To prove that dissolution (dissolving) of table salt in water is a physical change.

Steps:	Figures:	Observations:
1. Taste a spoon of table salt.		- Table salt has a salty taste.
2. Add the table salt to a glass beaker containing water and stir it by a glass rod until it dissolves.	glass beaker	-The shape of table salt changes (disappears).
3. Put the beaker on a flame until the water evaporates.		
4. Move the beaker away from the flame, then taste the remaining substance.	table salt	- The remaining substance in the beaker is table salt.

Conclusion:

Dissolving of table salt or sugar in water is a physical change as the shape of table salt or sugar changes, but its structure doesn't change.



G.R.

Dissolving of table salt in water is a physical change.

Because it causes a change in the shape of table salt, but its structure doesn't change.

disappear	يختفى	remaining substance	المادة المتبقية
stir	يُقلب	rod	ساق

Chemical change of matter

Chemical change

It is a change in the shape and structure of matter producing a new substance or new substances with different properties.

Examples :

1. Burning (combustion) of any matter as wood, sugar, paper, fuel or a candle.



2. Production of yoghurt from milk.



3. Rusting of iron.



4. Addition of yeast to pastry (doughs).



5. Adding sodium bicarbonate to vinegar.



burning / combustion	إحتراق	rusting of iron	صدأ الحديد	yoghurt	زبادي
yeast	خميرة	pastry / doughs	مُعجنات	vinegar	الخل
addition	إضافة	fuel	وقود		





6 Digestion of food.

7 Rot and fermentation of fruits.



To prove that combustion of paper is a chemical change.

Steps:	Figures:	Observations:
1. Burn a white paper with the help of your teacher.		- The white paper changes into black ash.
2. Put the produced material (black ash) on a plate, then compare between the white paper and the black ash.	Black ash	- The shape and structure of the white paper is different from the black ash that can't be returned back to its original form again.

Conclusion:

Combustion of paper is a chemical change as the shape and the structure of the white paper change by burning.

digestion of food	هضم الطعام	fermentation	تخمر	return back	يعود
black ash	رماد أسود	original form	الشكل الأصلى	rot	تعفن





To prove that burning (charring) of sugar is a chemical change.

Step:	Figure:	Observations:
Heat an amount of sugar in a crucible, then taste it after cooling.	Sugar, Crucible, Flame	- Sugar changes into a brown substance that loses its sweety taste by heating. - The brown substance can't be returned back to the sweet white sugar after cooling.

Conclusion:

Burning of sugar is a chemical change as the shape and the structure of sugar change by heating.



To prove that rusting of iron is a chemical change.

Step:	Figures:	Observation:
Expose a piece of cleaning iron wire to wet air (water + air) for a certain period, then examine it by a magnifying lens.	1, 2	Formation of a brittle brown layer (rust) on the iron wire.

Conclusion:

Rusting of iron is a chemical change as the shape and the structure of the cleaning iron wire change when it is exposed to wet air.

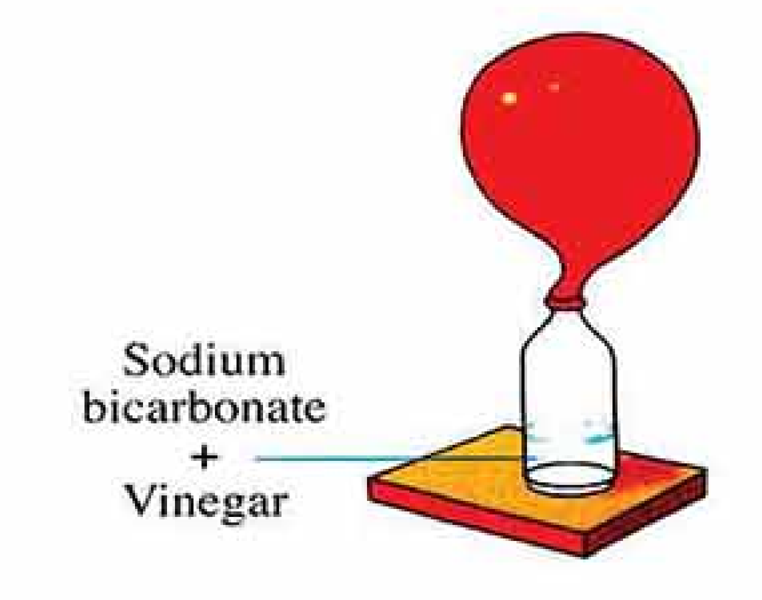
cleaning iron wire	سلك للتنظيف	brittle brown layer	طبقة بنية هشة
wet air	هواء رطب	magnifying lens	عدسة مُكبرة
crucible	بوتقة	sweety taste	المذاق الحلو





To prove that adding sodium bicarbonate to vinegar is a chemical change.

Steps:



1. Put an amount of sodium bicarbonate (or baking soda) solution and vinegar in a bottle.
2. Put a balloon at the opening of the bottle quickly.

Observation:

The balloon is inflated due to the production of carbon dioxide gas.

Conclusion:

Adding sodium bicarbonate to vinegar is a chemical change as their shape and structure change producing a new substance with new properties.

G.R.

- **Burning of wood is a chemical change.**
  Because burning of wood causes a change in its shape and structure producing a new substance with new properties.
- **Formation of a layer of rust on the surface of wet iron wire.**
  Due to the chemical change that is produced from the reaction between iron and both water and oxygen.

Notes

- Melting of a candle is a physical change, while burning of a candle is a chemical change.
- Rusting of iron is formed due to the reaction between iron and both oxygen and water.

adding إضافة inflated منفوخة production إنتاج







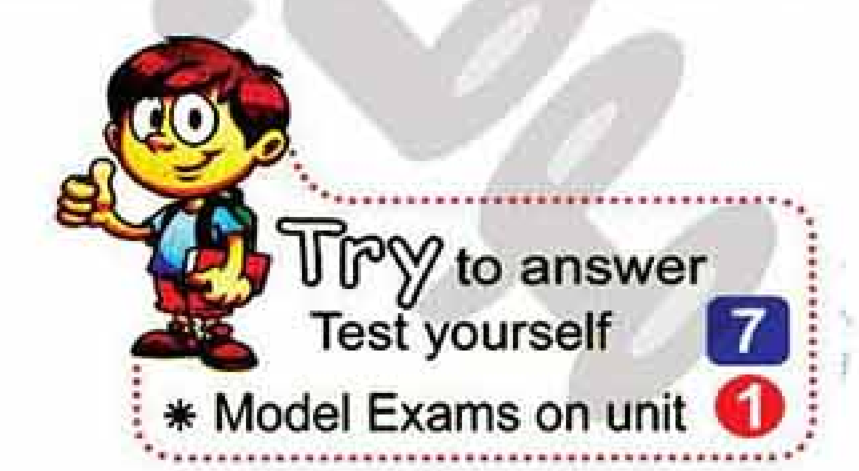
Read and learn :

- Melting of iron is a physical change as its structure doesn't change.
- The addition of some elements as carbon and manganese to molten iron changes its properties (**i.e.** iron becomes more harder and resists rust and corrosion) forming an iron alloy.
- There is another alloy made of copper and gold.

Exercise

Complete the following table by writting the type of change that takes place to substances, then mention the reason :

Change that happens to the substance	Type of change	Reason
1. Breaking of chalk :		
2. Burning of wood :		
3. Copper malleability into wires :		
4. Melting of iron :		
5. Dissolving of sugar into water :		
6. Cutting paper into small pieces.		
7. Rusting of iron.		



molten iron الحديد المنصهر
resists يقاوم
harder أكثر صلابة
iron alloy سبيكة الحديد
corrosion التآكل





- There are two types of changes that may occur to matter, which are :
  - Physical change.
  - Chemical change.
- **Comparison between the physical change and the chemical change :**

Points of comparison	Physical change	Chemical change
1. Change in the appearance of a substance :	- Takes place.	- Takes place.
2. Change in the structure of a substance :	- Doesn't take place.	- Takes place.
3. Examples :	- Melting of ice. - Melting of wax. - Bending of metals. - Dissolving of sugar or table salt in water.	- Burning of sugar. - Burning of a candle. - Rusting of iron. - Burning of fuel.

- Change of water from one state to another (melting, evaporation, condensation and freezing) is considered as a physical change.
- Melting of a candle is a physical change while burning of a candle is a chemical change.
- Rusting of iron is formed due to the reaction between iron and both oxygen and water.





Questions on lesson four

Questions signed by 📖 have been taken from the school book.

1. Choose the correct answer :

1. The types of changes that may occur to matter are .... types.
   a. two b. three c. four d. five
2. All of these examples belong to physical changes except ....
   a. grinding of sugar. b. melting of ice.
   c. fermentation of food. d. condensation of water vapour.
3. 📖 .... is an example of the physical changes.
   a. Dissolving of sugar in water b. Fermentation of fruits
   c. Combustion of a candle d. Rusting of iron
4. 📖 The change produced as a result of ductility of copper to form wires is the same change produced from ....
   a. making bread. b. melting of wax.
   c. burning of coal. d. charring of sugar.
5. 📖 Adding table salt to water with stirring produces ....
   a. a new substance. b. a chemical change.
   c. a physical change. d. (a) and (b).
6. .... is a change in the appearance of matter without any change in its structure.
   a. Chemical change b. Physical change
   c. Matter d. Metal
7. 📖 Putting a bottle of water in the freezer of a refrigerator for 24 hours causes ....
   a. a chemical change to water. b. a physical change to water.
   c. formation of a new substance. d. all the previous answers.
8. .... belongs to chemical changes.
   a. Burning of a candle b. Ice melting
   c. Glass re-shaping d. Water freezing



9. All of the following are chemical changes except ....
   a. burning of coal.
   b. formation of table salt solution.
   c. combustion of paper.
   d. rusting of iron.
10. .... is a change in the structure of the substance producing a new substance or new substances with different properties.
   a. The chemical change
   b. The physical change
   c. Non-metal
   d. Element
11. Burning of sugar is a .... change.
   a. physical
   b. biological
   c. chemical
   d. freezing
12. Adding yeast in baking is considered ....
   a. a physical change.
   b. a chemical change
   c. a change in its appearance only.
   d. all the previous answers.
13. Which of the following is considered a chemical change that happens to a piece of paper ? ....
   a. Bending it.
   b. Burning it.
   c. Cutting it into pieces.
   d. Colouring it.
14. The change produced as a result of sugar burning is the same change produced from ....
   a. adding yeast to doughs.
   b. grinding sugar.
   c. evaporation process.
   d. paper recycling.

2. Put (✓) in front of the right statement and (×) in front of the wrong one, then correct it :

1. The change of matter from one state to another is a chemical change. ( )
2. Burning of wood is a chemical change. ( )
3. On adding table salt to water with stirring, the table salt disappears and a new substance is formed. ( )
4. Grinding a sugar cube is considered as a physical change, while the dissolving of sugar in water is a chemical change. ( )
5. Condensation of water vapour forming rain water is a chemical change. ( )
6. Rusting of iron does not change the structure of iron. ( )
7. Burning an amount of sugar is a chemical change, while its fermentation is a physical change. ( )



8. The combustion of a piece of paper is considered as a complete change in its structure. ( )
9. Cutting paper into small pieces is considered as a chemical change. ( )
10. Melting of wax forming wax drops is a chemical change. ( )
11. Freezing of water is a physical change, while its evaporation is a chemical change. ( )
12. During chemical change, matter loses its properties. ( )
13. Burning a match stick is considered as a physical change. ( )
14. The change of paper into black ash is a pnysical change. ( )

3. Write the scientific term of each of the following :

1. A change in the structure of the substance that gives a new substance with new properties. (..................)
2. 📖 A change in the appearance or the shape of matter without any change in its structure. (..................)
3. A change occurs when a piece of sugar is burned. (..................)
4. A change that occurs to iron when it rusts. (..................)
5. A change that occurs when water changes into water vapour. (..................)
6. 📖 Formation of brittle brown layer on the iron surface when it is exposed to wet air. (..................)
7. A change occurs when milk changes into yoghurt. (..................)
8. A change occurs when iron reacts with oxygen and water. (..................)
9. A change occurs during paper recycling. (..................)

4. Complete the following statements :

1. The dissolving of sugar in water is a .... change.
2. The .... change is a change in the shape or the appearance of matter only.
3. 📖 Melting of ice is considered as a .... change.
4. Paper recycling is a .... change.
5. Melting of any solid matter as chocolate is a .... change.
6. Ice turns into water by .... , this process is considered as a .... change.
7. 📖 Boiling of water to form water vapour is considered as a .... change.
8. 📖 The chemical change is a change in the ....

9. Grinding a quantity of sugar is a .... change, while burning an amount of sugar is a............ change.
10. Dissolving of sugar in water is a .... change, while rusting of iron is a .... change.
11. Burning of wood is considered as a .... change.
12. The freezing of molten wax drops is considered as a .... change, while burning a piece of paper is a .... change.
13. Adding sodium bicarbonate to vinegar is a .... change.
14. Iron rusts when it is exposed to .... and ....
15. Charring of bread is a .... change.
16. Fermentation of fruits produces a new .... with new ....
17. Ductility of copper into wires is considered as a .... change, while iron rusting is considered as a............ change.
18. Rot of fruits and their fermentation is considered as a .... change.
19. Melting of wax is considered as a .... change, while burning of a candle is a .... change.
20. Adding yeast in baking is considered as a .... change.
21. Production of yoghurt from milk and the digestion of food are .... changes.
22. Fuel of cars is .... substance and its burning for the purpose of movement is considered as a .... change.

5. What is meant by...?

1. A physical change.

....

....

2. A chemical change.

....

....

6. Give reasons for the following :

1. Melting of ice is a physical change.

....

....

2. Melting of wax is a physical change.

....

....



3. The change of water into ice is a physical change.
....
....

4. Burning a paper is considered as a chemical change.
....
....

5. Burning a piece of wood is considered as a chemical change.
....
....

6. Formation of a layer of rust on the surface of wet iron wire.
....
....

7. Changing the sugar flavour after heating it strongly.
....
....

8. Fermentation of milk is a chemical change.
....
....

9. Burning a piece of sugar is considered as a chemical change.
....
....

10. Adding yeast to pastry is a chemical change.
....
....

11. Sugar keeps its flavour after dissolving it in water.
....
....

12. A black substance is produced after burning a piece of paper.
....
....

13. Formation of clouds and rains is a physical change.
....
....

14. Burning a piece of bread is a chemical change.
....
....



15. Rusting of iron is considered as a chemical change.

....

....

7. **According to your study of the changes that happen to a certain substance. Classify the following sentences into two groups according to the type of change and the name of each group :**

1. Ending with the same substance that we started with.
2. New properties appear.
3. A new substance that differs from the original one is formed.
4. A change in the appearance of the substance.
5. A change in the structure of the substance.

A .... change	A .... change
....	....
....	....
....	....
....	....

8. **What happens when...?**

1. We expose a cold glass sheet to water vapour.

....

2. We burn a piece of paper.

....

3. Adding yeast to doughs, then baking. Why ?

....

4. Putting a piece of a wet iron wire in a jar filled with oxygen. Why ?

....

....

....

5. Putting a little amount of sugar in a beaker over a flame.

....

6. You expose a shiny iron nail to wet air for a certain period.

....

9. **Tamer has left a piece of an iron wire which is used in cleaning cooking pots in water and after a period of time, he recorded his observations :**

1. What did Tamer observe ?

....

2. Mention the type of change.

....

10. **Which of the following is a chemical change and which is a physical change and give reasons ?**

1. Burning a piece of wood.

....

2. Making a chair from wood.

....

3. Turning a piece of iron into iron nails.

....

4. Rusting of iron.

....

5. Burning of sugar.

....

6. Grinding a sugar cube.

....

7. Dissolving sugar in water.

....

8. Cutting a piece of paper.

....

9. Fermentation of fruits.

....

10. Melting of wax.

....

11. Melting of a chocolate bar.

....

12. Paper recycling.

....

13. Production of yoghurt from milk.

....

11. Compare between :

1. The chemical change and the physical change. (Mention examples).

....
....
....

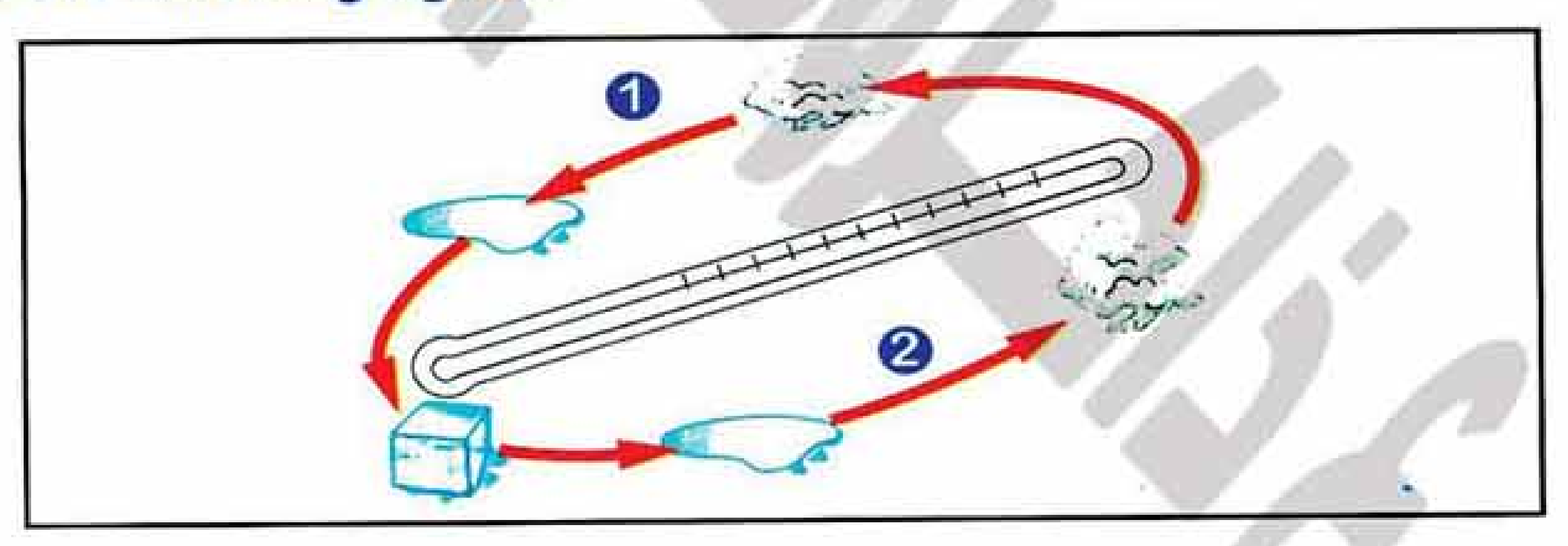
2. Burning of a candle and melting of wax.

....
....
....

3. Dissolving of sugar and burning of sugar.

....
....
....

12. In the following figure :



1. Number 1 is the change of matter from the .... state to the .... one.
2. Number 2 is the change of matter from the .... state to the .... one.
3. Mention the type of change happening in this figure ?

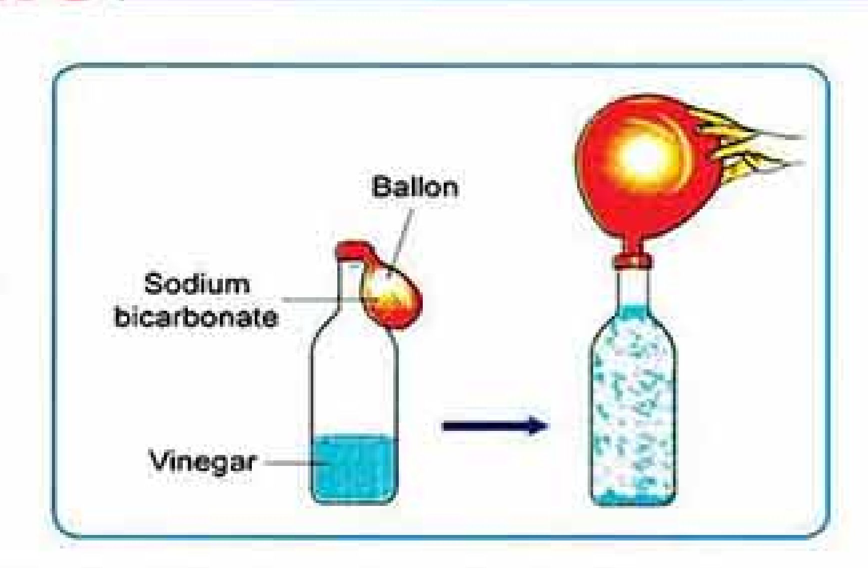
....



Timss Questions

1. As shown in the diagram, the balloon inflates when the sodium bicarbonate in the balloon is mixed with vinegar.

What causes this to happen ?



....

....

2. A pupil took a spoon of sugar and divided it into two halves. He put one half in a glass of water and stirred it until it dissolved. He put the other half in a dry spoon and brought it close to the flame of a candle until it burned.

What is the type of change that took place to the sugar in the two cases ?

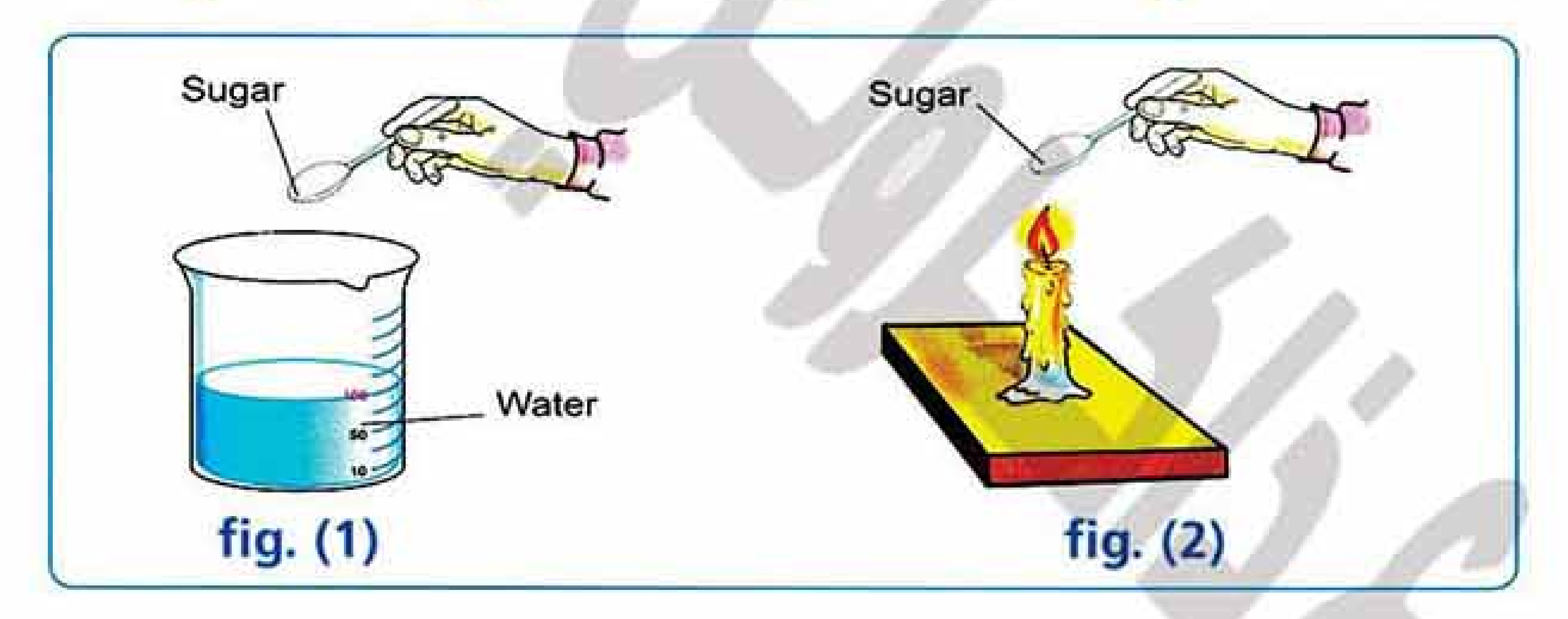
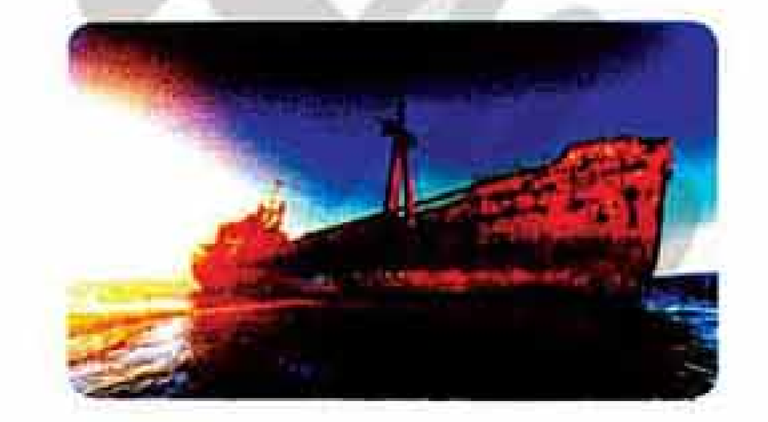


fig. (1) fig. (2)

....

....

3. Ships' pillars which are made of iron exposed to damage due to a type of change that you are studied.



(a) What type of change takes place ?

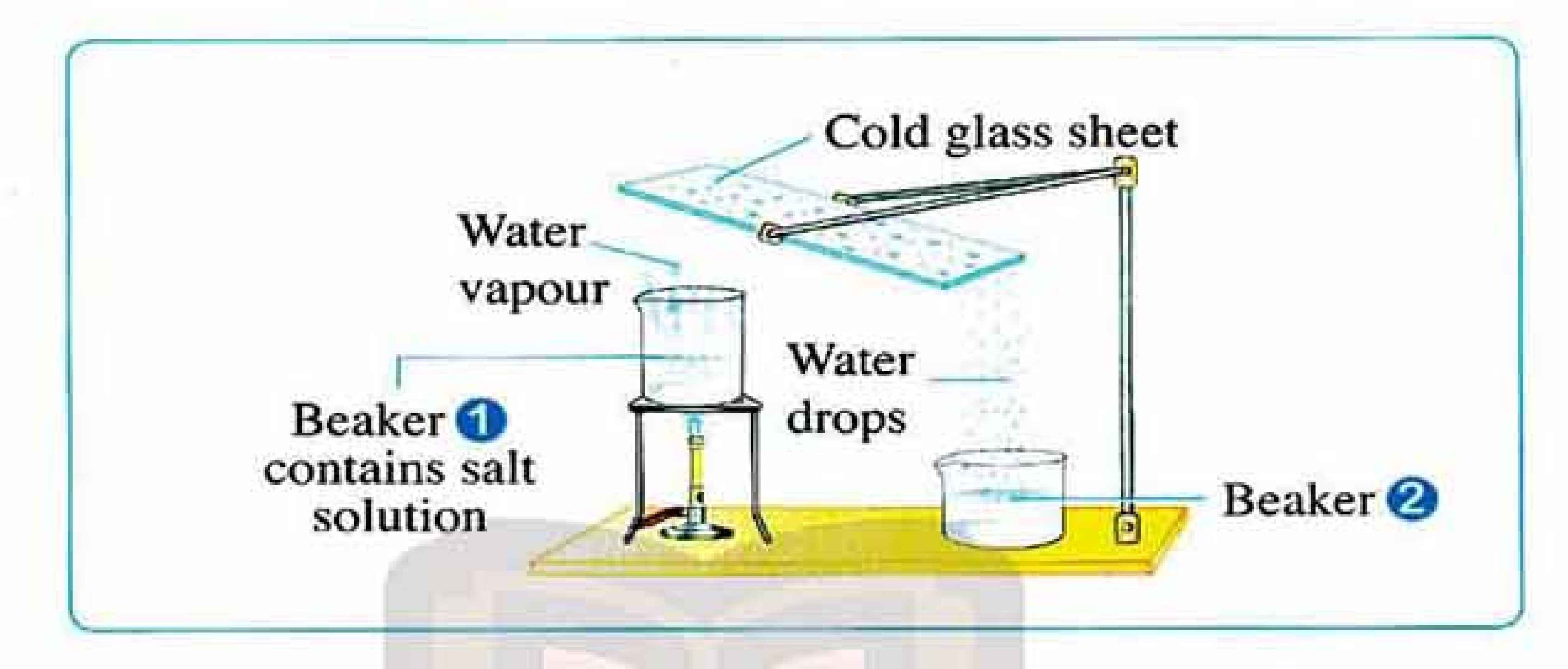
....

(b) .... of iron is formed due to the reaction between iron and both .... and ....



Unit 1

4. Look at the following figure, then answer the following questions :



(a) What is the process which takes place in beaker 1 ?

....

(b) What is the process which takes place on the cold glass sheet ?

....

(c) What is the type of change which occurs in the two beakers ?

....

(d) What will be left in beaker 1 after sometime ?

....





UNIT 2 The Universe

Lessons of the unit :

1. Stars and planets.
2. Motion of the Sun and the Earth
3. The atmosphere.

Unit Objectives By the end of this unit, you will be able to :

- Identify the universe.
- Explain the appearance of stars as small shinning spots.
- Identify the components of the solar system.
- Compare between a star, a planet and the moon.
- Conclude the presence of attraction forces among the celestial bodies.
- Explain the natural phenomena resulting from the motion of the celestial bodies.
- Identify the components of the atmosphere.
- Make a model indicating the sequence of day and night.
- Appreciate the grandeur of Allah for the accurate organization of the universe.



Lesson 1: Stars and Planets

Imagine that you are watching the space from a spaceship, you will observe that :

1. The world in which you live represents the surface of a very big sphere called **the Earth.**



2. The Earth with other planets are floating in an immense (wide) space.



3. There are shiny bodies floating in space called **stars.**



spaceship	سفينة فضاء	floating	سابحة	sphere	كرة
stars	نجوم	planets	كواكب	shiny bodies	أجسام لامعة
immense space	فضاء فسيح				





Stars

Stars

They are lightning bodies with different sizes that lie in the space.

Characteristics of stars :

1. They are lightning (bright or shining) celestial bodies that rotate in the space.
2. They have different sizes (big, medium and small).
3. They emit (radiate) heat & light.

The big stars look very small to us, because they are very distant (far) from us.

Example : To explain that the size of a distant body seems small :

As you see in the opposite photo, the flying plane seems smaller in size than the landing one, because the flying plane is far (distant from us than the landing one).



G.R.

Big stars appear smaller to us.

Because they are very distant (far) from us.

Exercise

Complete the following sentences:

1. .... are lightning celestial bodies that rotate in the space.
2. Stars emit .... and ....
3. Big stars look very small to us, because they are .... from us.

distant/far	بعيدة	seems	تبدو
lightning	مضيئة	celestial bodies	أجسام فضائية
emit / radiate	تشع	rotate	يدور
plane	طائرة		

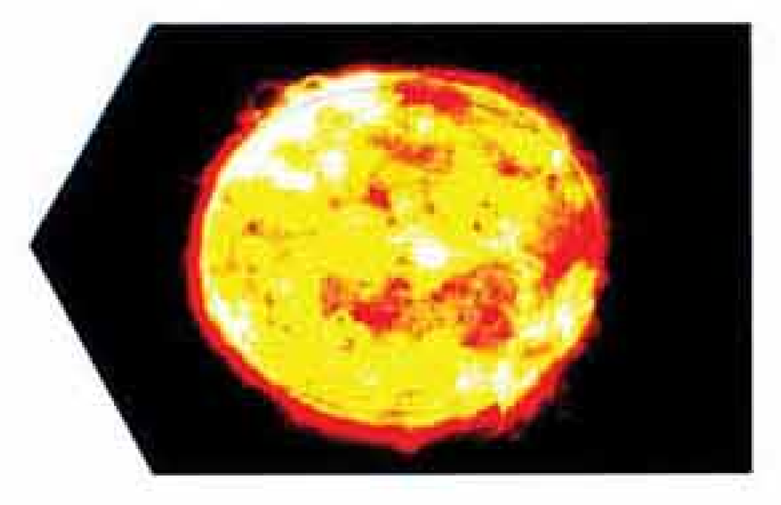








The solar system consists of :



1 The Sun

It is the center of the solar system.



2 The Eight planets

They revolve around the Sun.



3 Moons

They revolve around some planets.



4 Other celestial bodies

Such as comets, asteroids, meteoroids and meteors.

Now, we are going to study the Sun, the eight planets and the moon.

solar system	النظام الشمسي	comets	مذنبات
revolve	تدور	asteroids	كويكبات
moons	أقمار	meteoroids	نيازك
		meteors	شُهب



1 The Sun :

1. It is a star (self-shining body). **G.R.**

   Because it radiates (emits) heat and light.

2. It lies in the center of the solar system.
3. It is the biggest body in the solar system.
4. It is a medium - sized star but it looks the biggest to us. **G.R.**

   Because it is the nearest star to us.

2 The eight planets :

Planets

They are dark bodies that revolve around the Sun in fixed orbits (paths).

The arrangement of planets :

1. According to their distances from the Sun (beginning from the nearest to the farthest)

Mercury ➔ Venus ➔ Earth ➔ Mars ➔ Jupiter ➔ Saturn ➔ Uranus ➔ Neptune

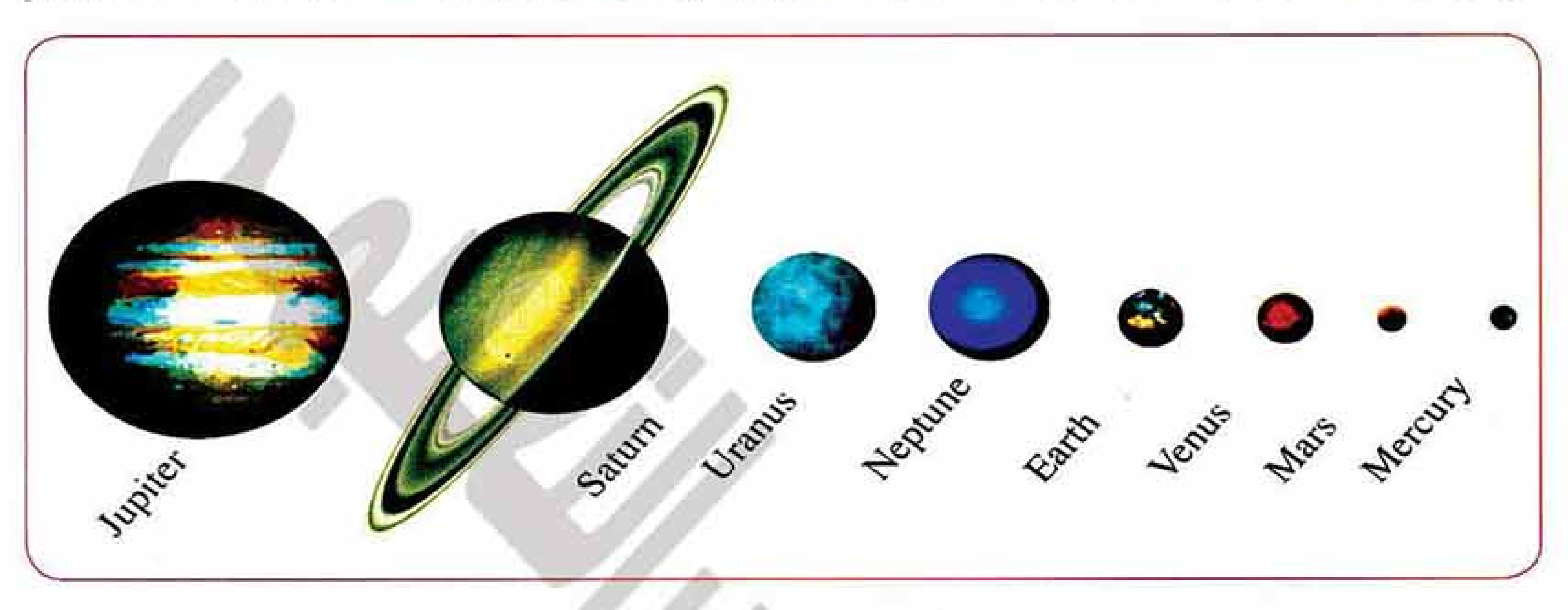


fixed	ثابت	orbit/path	مدار	arrangement	ترتيب
nearest	أقرب	farthest	أبعد	self-shining	ذاتية الأضاءة

Unit 2

2. According to their sizes (beginning from the biggest to the smallest) :

Jupiter → Saturn → Uranus → Neptune → Earth → Venus → Mars → Mercury



So, we conclude that :

- The nearest (closest) planet to the Sun is Mercury.
- The farthest planet from the Sun and from the Earth is Neptune.
- The biggest planet is Jupiter.
- The smallest planet is Mercury.
- The nearest two planets to the Earth are Venus and Mars.
- The third planet away from the Sun is the Earth.

Exercise

Arrange the following planets according to:

- Their distances from the Sun.

- Their sizes.

(Venus - Earth - Mars - Saturn - Neptune - Mercury - Uranus - Jupiter)

....

....

....

closest أقرب



LESSON 1

The characters of the planets :



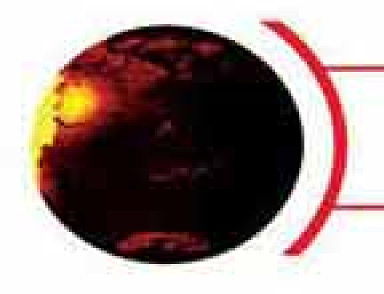
Mercury — The nearest planet to the Sun.



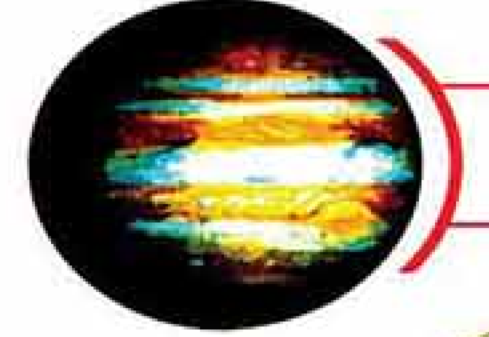
Venus — The most beautiful planet.



Earth —
- The planet, where we live.
- It is a watery planet, because water occupies most of it.



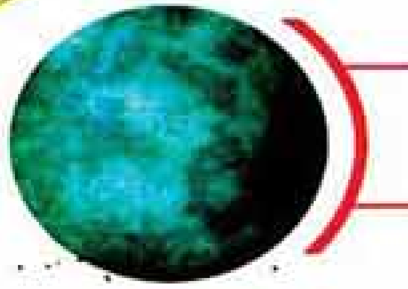
Mars — The red planet, because its rocks contain iron.



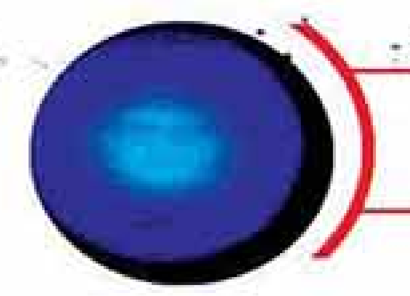
Jupiter — The biggest planet (It is giant).



Saturn — The planet which has coloured rings around it.



Uranus — The cold planet.



Neptune — The blue planet.

watery planet	كوكب مائى	rocks	صخور
giant	ضخم	coloured rings	حلقات ملونة



Unit 2

Read and learn :

- In the past, scientists classified pluto as a planet in the solar system.
- But, the international astronomical union (that was held in Brag tower in 24 August 2006) decided that pluto is excluded from the solar system, because it is very small and its volume is less than one fifth of the volume of the Earth.

3 Moons :

- Moons are the followers of some planets and they revolve around them.
- The Moon revolves around the Earth and it is the nearest neighbour to us in space.



The moon

It is a dark body revolves around the Earth and reflects the sunlight falling on its surface, so it seems shiny.



Activity **To show that the Moon seems bright (shiny) in the sky.**





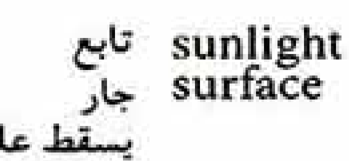
Materials:

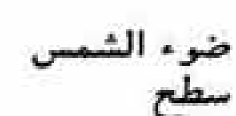
1. Small plastic ball. 2. Foil paper. 3. Pocket torch.

Steps:

1. Cover a ball with a piece of foil *(the ball represents the Moon),* then darken the class.
2. Turn a pocket torch on and direct it towards the ball. *(The pocket torch represents the Sun).*







follower	تابع	sunlight	ضوء الشمس
neighbour	جار	surface	سطح
falling on	يسقط على		







Observations:

1. You can't see the ball in the dark.
2. You can see the ball shiny after turning the torch on.



Conclusion:

The Moon is a dark body, but it seems shiny, because it reflects the sunlight falling on its surface.

G.R.

The Moon is a dark body, but it seems bright (shiny).

Because it reflects the sunlight falling on its surface.

Read and learn :

This table shows the number of moons that rotate around the planets according to NASA website :

Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune
-	-	1	2	62	60	27	13





Comparison between star, planet and Moon :

Star	Planet	Moon
- It is a shiny body. - It emits heat and light. - It rotates in the space. *Example :* The Sun.	- It is a dark body. - It doesn't emit (radiate) heat or light. - It revolves in the space around the Sun. *Example :* The Earth.	- It is a dark body. - It reflects sunlight falling on it. - It revolves in space around the planet. *Example :* The Moon.

The arrangement of planets :

1. According to their distances from the Sun (beginning from the nearest to the farthest)
   (Mercury - Venus - Earth - Mars - Jupiter - Saturn - Uranus - Neptune)
2. According to their sizes (beginning from the biggest to the smallest).
   (Jupiter - Saturn - Uranus - Neptune - Earth - Venus - Mars - Mercury)

The characters of the planets :

Mercury : is the nearest planet to the Sun.

Venus : is the most beautiful planet.

Earth : - is the planet, where we live.
- It is a watery planet, because water occupies most of it.

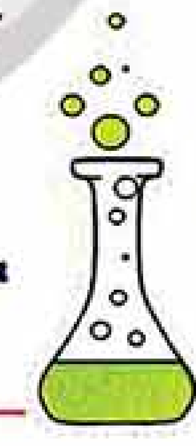
Mars : is the red planet, because its rocks contain iron.

Jupiter : is the biggest planet.

Saturn : is the planet which has coloured rings around it.

Uranus : is the cold planet.

Neptune: is the blue planet.







Questions signed by 📖 have been taken from the school book.

Questions on lesson one

1. Choose the correct answer :

1. 📖 Stars ....
   a. are shiny bodies. b. are dark bodies.
   c. are bodies that don't emit light and heat.
   d. all the previous answers.
2. 📖 The Sun is a star, because it ....
   a. absorbs light. b. reflects light and heat.
   c. radiates light. d. lets light pass through.
3. The solar system includes ....
   a. the Sun and eight planets. b. comets and Moons.
   c. meteors and meteoroids. d. (a) , (b) and (c).
4. .... is the biggest body in the solar system.
   a. The Earth b. The Moon c. The Sun d. Neptune
5. 📖 The central body of the solar system is ....
   a. the Earth. b. the Sun. c. the Moon. d. Mars.
6. 📖 The number of planets in the solar system is ....
   a. four. b. six. c. eight. d. nine.
7. .... are dark bodies that revolve around the Sun in fixed paths.
   a. Moons b. Planets
   c. Sun and Earth d. Sun and Jupiter
8. Planets are arranged according to their distances from the Sun as follows : ....
   a. Mercury - Earth - Venus - Mars - Jupiter - Saturn - Neptune - Uranus.
   b. Earth - Saturn - Neptune - Mars - Mercury - Venus - Jupiter - Uranus.
   c. Mercury - Venus - Earth - Mars - Jupiter - Saturn - Uranus - Neptune.
   d. Saturn - Uranus - Neptune - Mercury - Venus - Earth - Mars - Jupiter.
9. The nearest planet to Mercury is ....
   a. Venus. b. Sun. c. Mars. d. Jupiter.
10. Neptune is a ....
   a. planet. b. meteoroid. c. star. d. comet.

Unit 2

11. .... planet lies between Mercury and Earth planets.
a. Saturn b. Jupiter c. Venus d. Neptune

12. The nearest planet to the Sun is ....
a. Earth. b. Mercury. c. Neptune. d. Jupiter.

13. The farthest planet from the Earth is ....
a. Mars. b. Neptune. c. Jupiter. d. Mercury.

14. The farthest planet from the Sun is ....
a. Mercury. b. Earth. c. Neptune. d. Mars.

15. Saturn is farther than .... planet from the Sun.
a. Mars b. Neptune c. Uranus d. (b) and (c)

16. .... is from the smallest four planets in the solar system.
a. Jupiter b. Neptune c. Saturn d. Venus

17. .... is the third planet according to the distance from the Sun and the fifth planet according to the size.
a. Neptune b. Mars c. Earth d. Venus

18. The planet that occupies the six position according to the distance from the Sun is ....
a. Saturn b. Uranus. c. Earth. d. Jupiter.

19. The closest two planets to Uranus are ....
a. Saturn and Neptune. b. Saturn and Earth.
c. Neptune and Jupiter. d. Mars and Mercury.

20. .... is the biggest planet in the solar system.
a. Earth b. Mercury c. Neptune d. Jupiter

21. The biggest two bodies in the solar system are ....
a. Saturn and Jupiter. b. Neptune and Jupiter.
c. Jupiter and Sun. d. Earth and Saturn.

22. The smallest planet is ....
a. Mercury b. Earth. c. Venus. d. Jupiter.

23. The most beautiful planet in the solar system is ....
a. Earth. b. Saturn. c. Venus. d. Mars.

24. Saturn is characterized by having ....
a. blue colour. b. red soil.
c. black rings. d. coloured rings.



25. The cold planet is ....
    a. Uranus. b. Sun. c. Earth. d. Jupiter.
26. The blue planet is ....
    a. Neptune. b. Mars. c. Venus. d. Saturn.
27. The red planet is ....
    a. Jupiter. b. Neptune. c. Mars. d. Uranus.
28. .... is a dark body that revolves around the Earth and reflects sunlight.
    a. Planet b. The Sun c. The Moon d. Mars
29. We see the Moon bright , because ....
    a. it absorbs sunlight. b. it radiates light.
    c. it lets light pass through. d. it reflects sunlight.

2. Choose from column (B) what suits it in column (A) :

(a)

(A)	(B)
1. The nearest planet to the Sun.	a. Jupiter.
2. The farthest planet from the Sun.	b. Mars.
3. The fourth planet away from the Sun.	c. The Sun.
4. A planet on which we live.	d. Earth.
5. The biggest body in the solar system.	e. Mercury.
6. The biggest planet in the solar system.	f. Neptune.
	g. Uranus.
	h. Venus.

1. .... 2. .... 3. .... 4. .... 5. .... 6. ....

(b)

(A)	(B)
1. Mercury	a. is called the red planet.
2. Earth	b. is the biggest planet.
3. Jupiter	c. is the farthest planet from the Sun.
4. Neptune	d. is the smallest planet.
5. Mars	e. is the second planet away from the Sun.
	f. is the third planet away from the Sun.

1. .... 2. .... 3. .... 4. .... 5. ....

Unit 2

3. Put (✓) in front of the right statement and (×) in front of the wrong one, then correct it :

1. Stars are shiny bodies. ( )
2. The Sun is the nearest star to us. ( )
3. 📖 The Sun is a planet and it emits light. ( )
4. The solar system includes meteoroids, comets, the Sun and Moons only. ( )
5. The biggest body in the solar system is Neptune. ( )
6. Planets are dark objects that don't emit light. ( )
7. The Earth revolves around the Sun in a fixed path. ( )
8. The closest two planets to the Earth are Venus and Mars. ( )
9. Saturn is the next planet after Jupiter according to the distance from the Sun ( )
10. The fifth planet away from the Sun is the Earth. ( )
11. The number of planets that revolve around the Sun is eight planets. ( )
12. The third planet away from the Sun is Mars. ( )
13. Neptune is the farthest planet from the Sun. ( )
14. The nearest planet to the Sun is Mercury, while the farthest one is Uranus. ( )
15. 📖 The biggest planet in the solar system is Uranus ( )
16. Jupiter is the biggest star, while the Sun is the biggest planet. ( )
17. Neptune is the most beautiful planet, while Uranus is the red planet. ( )
18. Saturn has a big number of coloured rings around it. ( )
19. 📖 The Moon is a shining star, that radiates light and heat. ( )
20. The Moon seems bright as it reflects the sunlight falling on it. ( )

4. Write the scientific term of each of the following :

1. The largest body in the solar system. (..................)
2. A celestial body in the solar system that emits heat and light. (..................)
3. Shiny bodies have different sizes in the vast vacuum. (..................)
4. 📖 Shiny objects radiate light and heat, and appear in the sky at night. (..................)
5. The central body of the solar system. (..................)
6. A medium-sized star, where the Earth planet revolves around it. (..................)



7. Celestial dark bodies that revolve around the Sun and do not emit light. (..................)
8. The smallest planet in the solar system. (..................)
9. 📖 Dark objects revolve around the Sun in fixed orbits. (..................)
10. The nearest planet to the Sun. (..................)
11. The nearest star to us. (..................)
12. The planet that is considered the third one away from the Sun and the fifth one according to the size. (..................)
13. The cold planet in the solar system. (..................)
14. The farthest planet away from the Sun. (..................)
15. The second biggest planet in the solar system. (..................)
16. 📖 One of the solar system planets that has coloured rings around it. (..................)
17. The red planet. (..................)
18. The most beautiful planet. (..................)
19. The blue planet in the solar system. (..................)
20. 📖 A dark body revolves around the Sun and we live on it. (..................)
21. 📖 A dark object that revolves around the Earth and reflects the sunlight falling on its surface. (..................)
22. They are the followers of some planets that revolve around them. (..................)
23. 📖 Dark bodies revolve around the planets and reflect the sunlight falling on them. (..................)

5. Complete the following :

1. .... is a star.
2. The Sun radiates .... and ....
3. The solar system includes .... , ... , moons, meteors, ... and comets.
4. .... is the biggest body in the solar system.
5. 📖 .... locates at the center of the solar system and there are .... that revolve around it in definite orbits.
6. 📖 Planets are .... bodies that revolve around the Sun in fixed orbits.
7. .... are shiny bodies, while .... are dark bodies that revolve around the Sun.

8. 📖 The solar system consists of eight ....
9. The Sun is a .... , while the Earth is a ....
10. Mercury is the .... planet to the Sun.
11. The nearest two planets to the Sun are .... and ....
12. The nearest two planets to the Earth are .... and ....
13. Venus and Saturn are .... , while the Sun is a ....
14. 📖 The nearest planet to the Sun is .... , while .... is the farthest planet from the Sun.
15. The fourth closest planet to the Sun is ....
16. 📖 The biggest planet is .... , while .... is the smallest planet.
17. The Earth occupies the .... position according to the size, while it occupies the .... position according to the distance from the Sun.
18. .... is the biggest planet in the solar system, while .... is the biggest body in the solar system.
19. .... is the most beautiful planet in the solar system.
20. .... is the blue planet, while Uranus is the .... planet.
21 .... planet has coloured rings around it, while we live on .... planet.
22. 📖 The Earth lies between .... planet and .... planet.
23. 📖 Mars is known as .... planet, while Neptune is called .... planet.
24. 📖 The smallest planet is .... , while the farthest planet from the Sun is ....
25. The planets revolve around .... , while moons revolve around ....
26. The space objects that don't emit light are .... and ....
27. .... is a dark body that revolves around the Earth and reflects the ....

6. Give reasons for the following :

1. 📖 Big stars seem small in size.

....

2. The Sun is a self-shining body.

....

3. 📖 The Sun is a star, while the Earth is a planet.

....

....

4. The Sun seems bigger to us than the other stars.

....

5. Planets and Moons have some similar characteristics.

....

6. Although the Moon appears bright in the sky, we don't consider it as a star.

....

7. The Earth is a planet.

....

8. Although the Moon is a dark body, we see it shiny.

....

9. Uranus is named "The cold planet".

....

7. Compare between :

1. A star and a planet.

....
....
....
....

2. The Sun and Mars.

....
....
....
....

3. The Earth and the Moon.

....
....
....
....



Unit 2

8. **Arrange the following planets from the nearest to the farthest from the Sun:**

1. Neptune - Venus - Uranus - Mars - Earth - Saturn.

....

2. Venus - Mercury - Uranus - Saturn.

....

3. Jupiter - Earth - Venus - Saturn.

....

9. **Arrange the following planets according to their sizes (begin with the smallest) :**

1. Jupiter - Earth - Saturn - Venus.

....

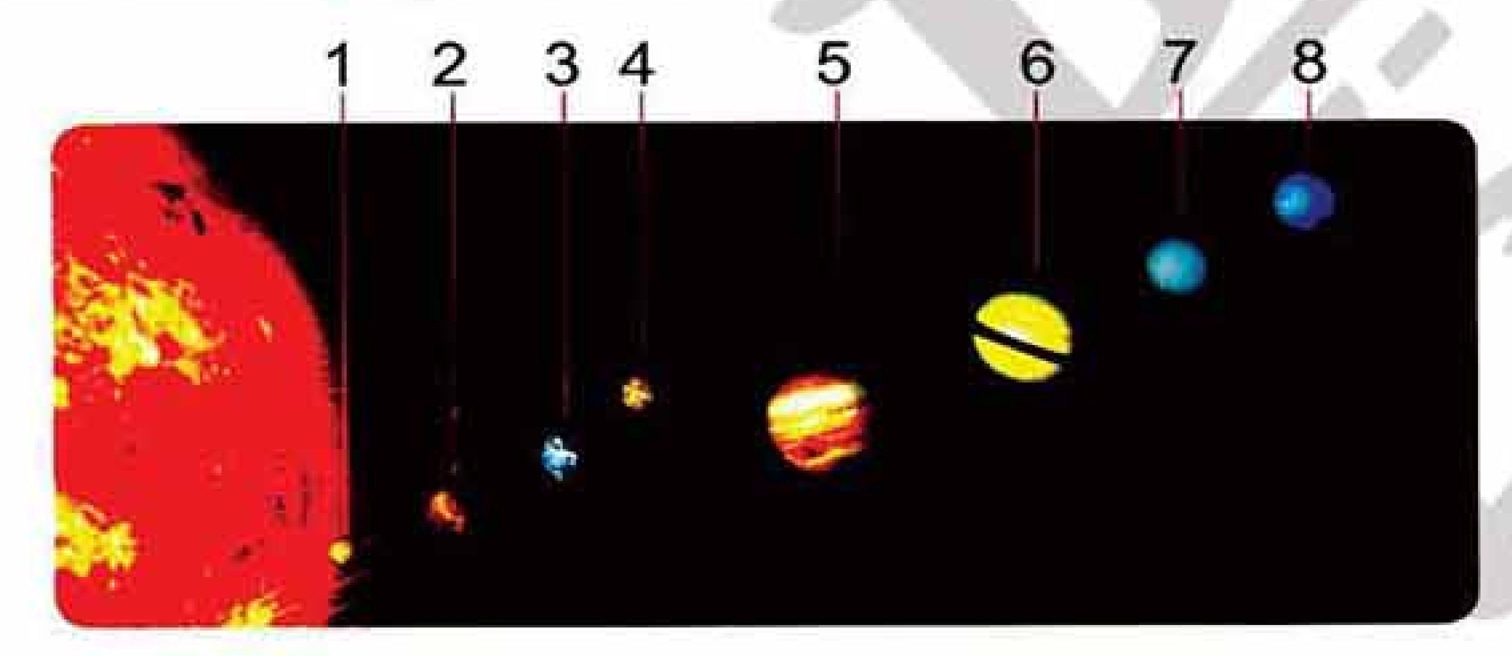
2. Earth - Mercury - Neptune - Saturn.

....

3. Mars - Venus - Uranus - Jupiter.

....

10. **Look at the following figure , then write the names of the planets :**



1. ....
2. ....
3. ....
4. ....
5. ....
6. ....
7. ....
8. ....



Timss Questions

1. Choose the correct answer :

1. What do you think if there is no Sun ? ....
   - a. The planet will be shiny.
   - b. The planet will be dark.
   - c. The planet will be cold.
   - d. (b) and (c)
2. What is the main difference between planets and moons in our solar system ? ....
   - a. All planets can support life, moons can not.
   - b. All planets have atmospheric air, moons do not have.
   - c. All planets are dark objects, moons are shining.
   - d. All planets orbit the Sun, all moons orbit planets.

2. The following four planets are planets in the solar system (Earth - Mercury - Venus - Mars) :

1. Which is the nearest planet to the Sun ?
   - a. Mars.
   - b. Venus.
   - c. Earth
   - d. Mercury.
2. Which of them is the farthest planet away from the Sun ?
   - a. Mercury.
   - b. Mars.
   - c. Venus.
   - d. Earth.
3. Which planet where we live ?
   - a. Venus.
   - b. Mercury.
   - c. Earth.
   - d. Mars.

3. Which of these planets we can live on :

a. Neptune.

b. Earth.

c. Mercury.

Give reason for your choice.

....

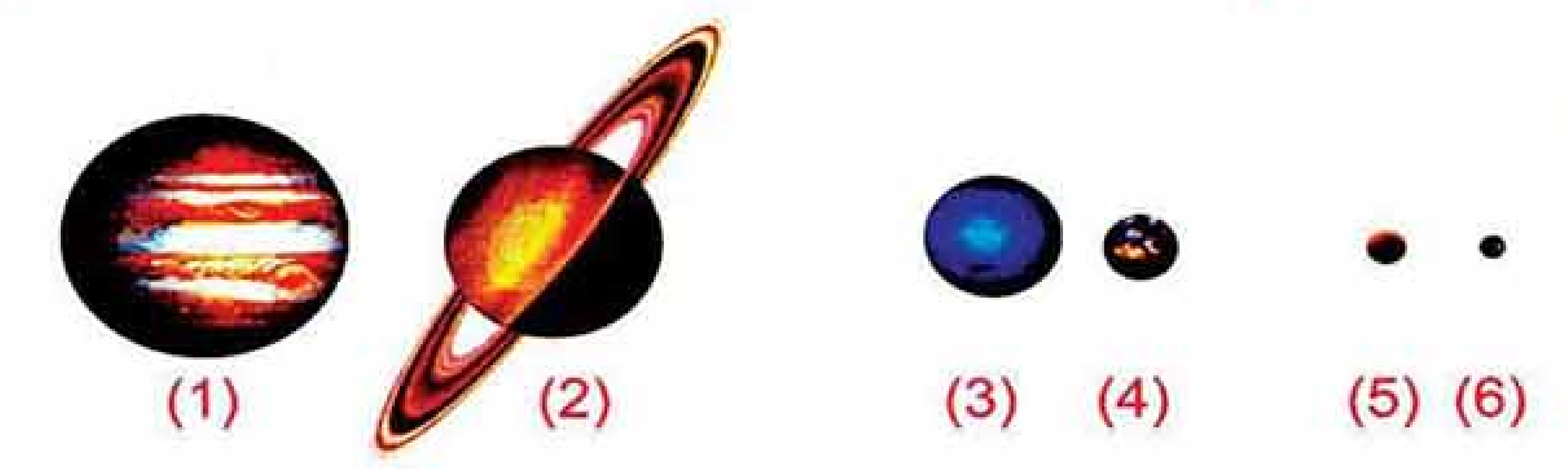
....

....



Unit 2

4. **The figure below shows some of planets of the solar system :**

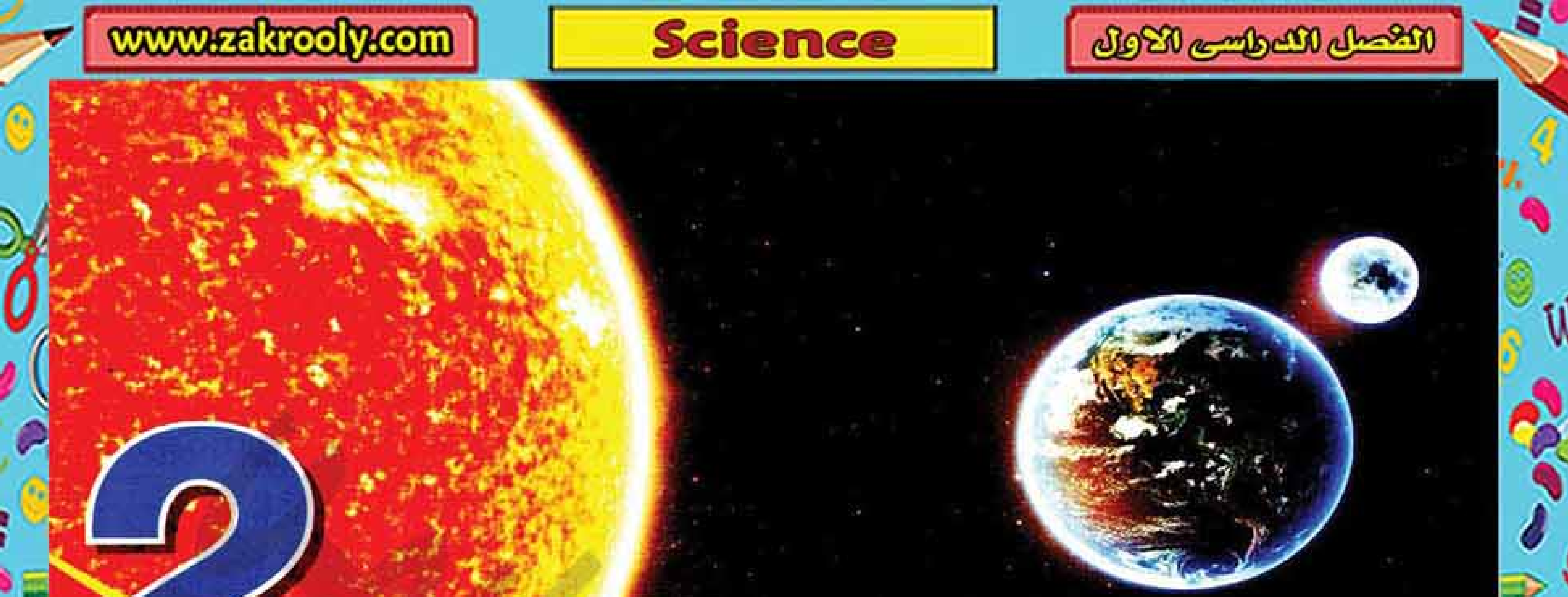


Complete the following from these figures :

1. The smallest planet is the planet number .... and it is called ....
2. The red planet is the planet number .... and it is called ....
3. The biggest planet is the planet number .... and it is called ....
4. The nearest planet to the Sun is the planet number .... and it is called ....
5. The planet which has coloured rings around it is number .... and it is called ....
6. The blue planet is the planet number .... and it is called ....
7. The farthest planet away from the Sun is the planet number .... and it is called ....
8. The planet where we live is the planet number .... and it is called ....







The motion of the Sun and the Earth

All the celestial bodies (as the Sun, the Earth and the Moon) float in space in a continuous motion as :



- The motion of the Sun.
- The motion of the Earth.
- The motion of the Moon.

In this lesson, we are going to study the motion of the Sun and the motion of the Earth.

The rotation (apparent movement) of the Sun :

We see the Sun rises in the east and sets in the west, thus it seems moving from the east to the west.

But , this is not true, in fact this is not due to rotation of the Sun but due to rotation of the Earth around itself (its axis), where this phenomenon is called **"apparent movement of the Sun."**



Read and learn :

- The Earth's axis is an unreal straight line that passes through the center of the Earth.
- Looking directly at the Sun is harmful for your eyes.



float	يسبح	continuous motion	حركة مستمرة	unreal	غير حقيقى
apparent movement	الحركة الظاهرية	phenomenon	ظاهرة	axis	محور
rise	تشرق	set	تغرب		





Activity 1 To indicate the apparent movement of the Sun.

Steps	Figures	Observations
Observe the shadow of a tree or any other object in the street during : **Sunrise**		The shadow of the tree is formed in the west.
Midday		The shadow of the tree is formed under the tree.
Sunset		The shadow of the tree is formed in the east.

Conclusion:

The movement of the shadow of fixed objects is due to the apparent movement of the Sun (rotation of the Earth around itself).

shadow الظل sunrise شروق الشمس sunset غروب الشمس midday منتصف النهار





Read and learn :

- **The sun clock :**

- It is the first discovered clock that depends on the length and the direction of shadow.
- The ancient Egyptians called this clock the shadow hour.
- Early, muslims used it to determine the times of praying.



The sun clock

The motion of the Earth

There are two types of motion of the Earth.

Types of motion of the Earth

1. Rotation of the Earth around itself (its axis)
2. Revolution of the Earth around the Sun

1 The rotation of the Earth around itself :

- The Earth consists of two hemispheres

  Which are :
  - Northern hemisphere (where Egypt lies).
  - Southern hemisphere.



- The Earth rotates around itself (its inclined axis) once every 24 hours (One day).
- The side of the Earth that faces the Sun during this rotation becomes bright or day, while its other side becomes dark or night.

sun clock	الساعة الشمسية	southern hemisphere	نصف الكرة الجنوبى
ancient egyptians	المصريون القدماء	depends on	يعتمد على
hemisphere	نصف كرة	praying	الصلاة
inclined	مائل	northern hemisphere	نصف الكرة الشمالى





- **The rotation of the Earth around its axis causes the sequence of day and night.**



Activity 2 To show the sequence of day and night.

Tools:


A plastic ball

A torch


A needle


A pin

Steps:

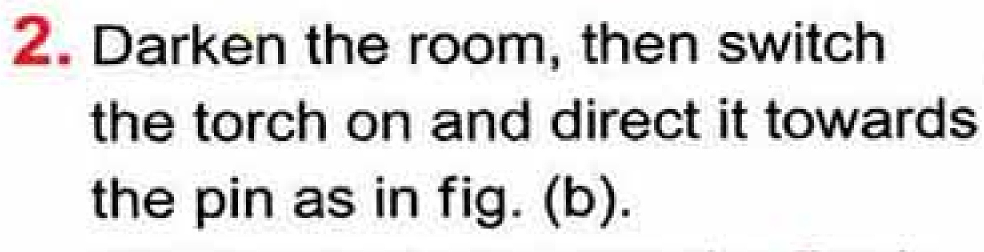
1. Pass the needle in an inclined position through the ball, then fix the pin at a part of the ball as in fig. (a).

   (the ball represents the Earth, while the needle represents the axis of the Earth)

Fig. (a)

2. Darken the room, then switch the torch on and direct it towards the pin as in fig. (b).

   (the torch represents the Sun)



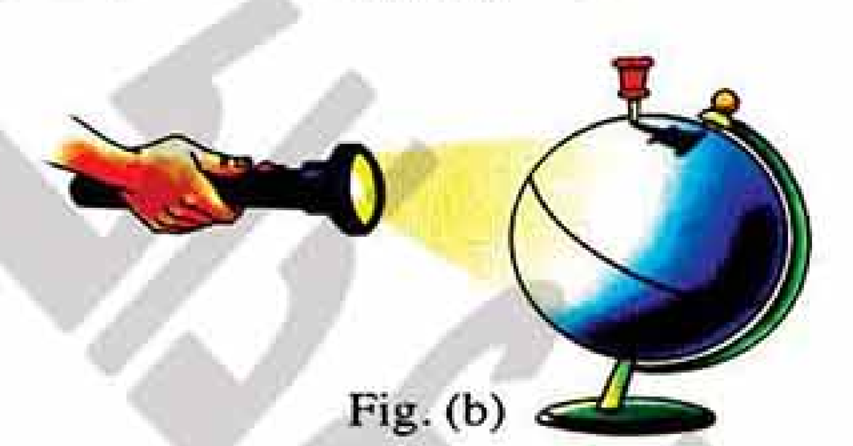


Fig. (b)

Observation:

The part of the ball that faces light is bright, but the other part that doesn't face light is dark.

3. Rotate the ball around itself while keeping the torch switched on as in fig. (c).

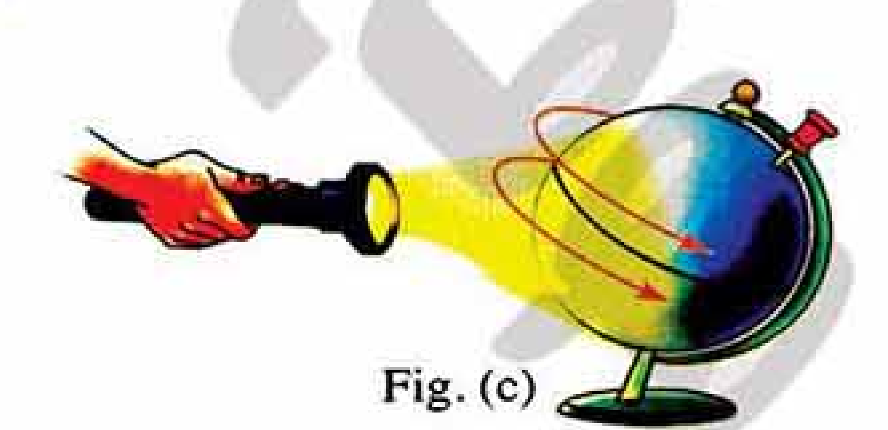


Fig. (c)

sequence	تتابع / تعاقب	inclined position	وضع مائل
face	يواجه	direct	يُوجه / يُسلط

LESSON 2

Observations:

- The bright part of the northern hemisphere is smaller than the dark part (night is longer than day).
- The bright part of the southern hemisphere is larger than the dark part (day is longer than night).

Conclusions:

1. The sequence of day and night occurs due to the rotation of the Earth around its axis.
2. The hours of day are not equal to the hours of night, because the axis of the Earth is inclined.

How to determine the length of day and night :



1. Read of sunset =
   Time of sunset (Hour : minute)
   +
   12 hours (12 : 00)



2. The length of day =
   Read of sunset (Hour : minute)
   −
   Read of sunrise (Hour : minute)



3. The length of night =
   24 hours (24 : 00)
   −
   Length of day (Hour : minute)

bright part الجزء المضئ determine تحديد
read قراءة





Example

Calculate the day hours and night hours from the following table :

Day	Time of sunrise	Time of sunset
	Hour : Minute	Hour : Minute
21st January	6 : 43	5 : 43

Solution

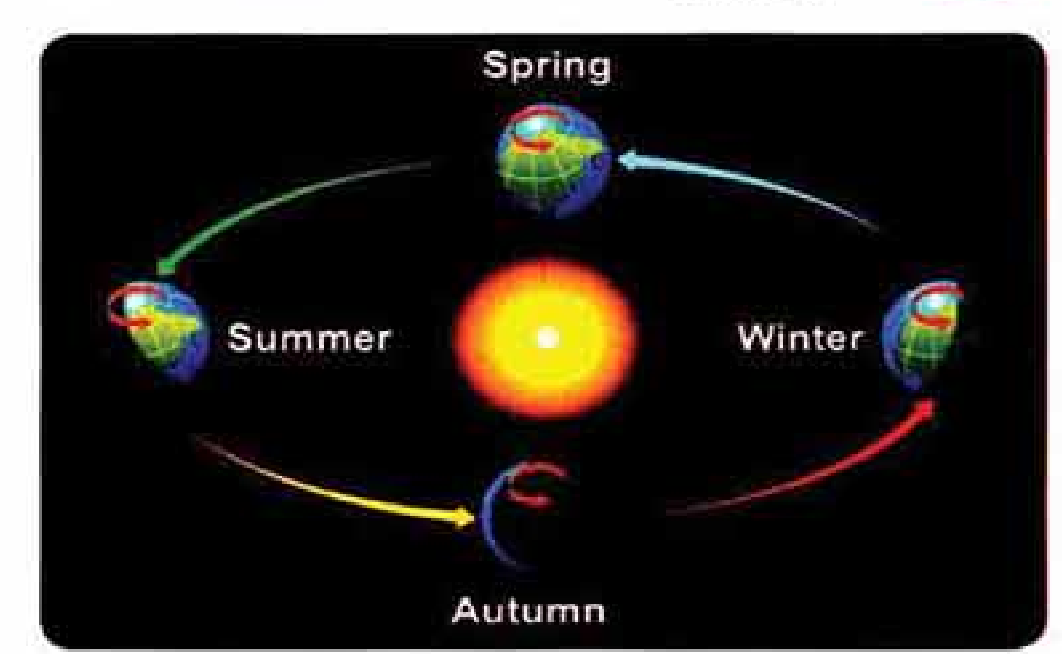
Read of sunset =	5	:	43	*(Time of sunset)*
+	12	:	00	*(12 hours)*
	17	:	43	*(hours)*
1. The length of day =	17	:	43	*(Read of sunset)*
−	6	:	43	*(Read of sunrise)*
	11	:	00	*(hours)*
2. The length of night =	24	:	00	*(24 hours)*
−	11	:	00	*(Length of day)*
	13	:	00	*(hours)*



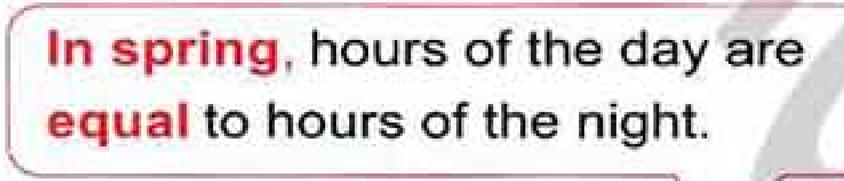


2 The revolution of the Earth around the Sun :

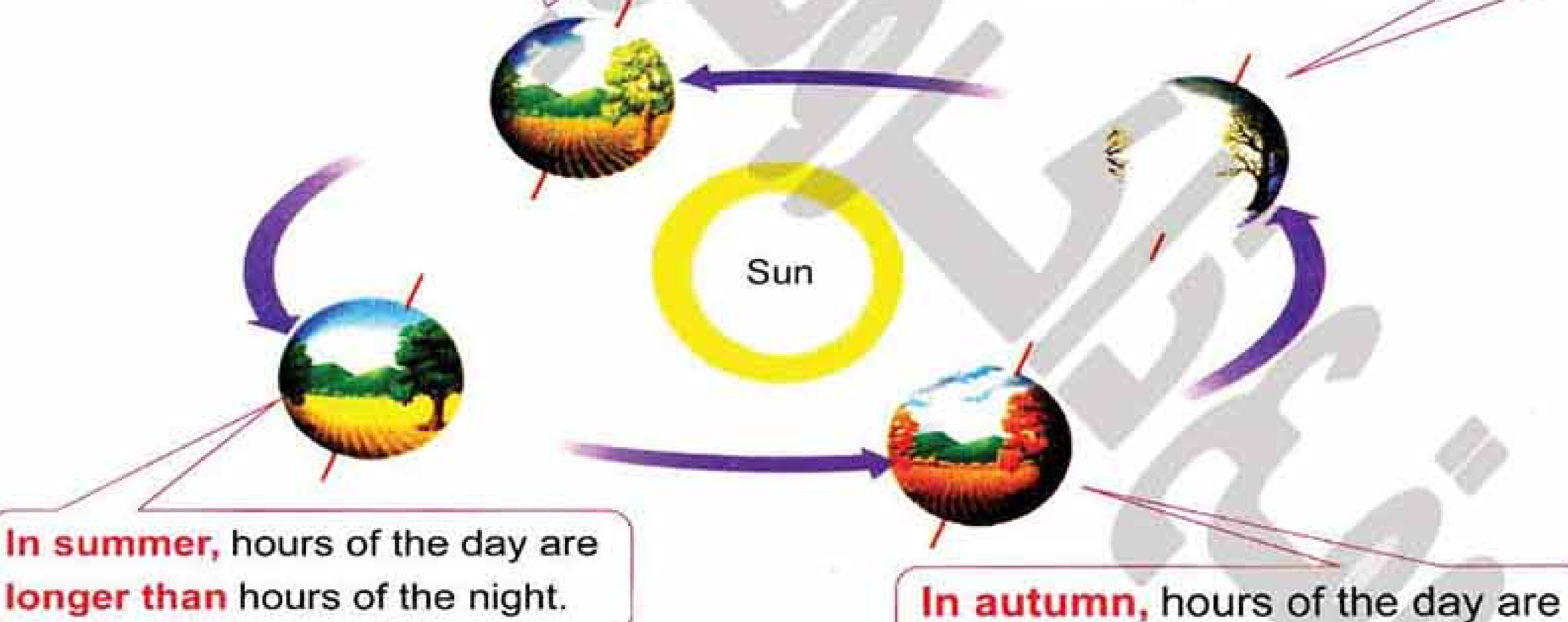


- The Earth revolves around the Sun once every $365\frac{1}{4}$ day (one year).
- **The revolution of the Earth around the Sun causes the sequence of the four seasons "summer - autumn - winter - spring".**



- **The following figure shows the length of day and the length of night in each season :**



Note

From the previous figure we can conclude that, the hours of the day are equal to the hours of the night in spring and autumn (fall).

four seasons	الفصول الأربعة	autumn	الخريف
revolution	دوران	summer	الصيف
winter	الشتاء	spring	الربيع







Activity 3

To show that the revolution of the Earth around the Sun causes the sequence of the four seasons.

Steps	Figures	Observations
1. Put a model of the Earth on a table, where its northern half is inclined towards an electric lamp.	Northern half	1. A large part of the northern half becomes light , while a small part of the southern half becomes light. (Summer in northern half and winter in southern half).
2. Move the model around the lamp, where its southern part is inclined towards the electric lamp.	Southern half	2. A large part of the southern half becomes light ,while a small part of the northern half becomes light. (Summer in southern half and winter in northern half).

Conclusion:

The Earth revolves around the Sun once every 365 and a quarter days ($365\frac{1}{4}$ days) causing the sequence of the four seasons.



Day in summer season is longer than a day in winter season.

Because the Earth's axis is inclined.



model نموذج towards ناحية electric lamp مصباح كهربى





- Apparent movement of the Sun is due to the rotation of the Earth around itself (its axis).
- The movement of the shadow of fixed objects is due to the apparent movement of the Sun.
- The Earth consists of two hemispheres, which are :
  - Northern hemisphere.
  - Southern hemisphere.
- There are two types of motion of the Earth which are :
  - Rotation of the Earth around its axis (itself).
  - Revolution of the Earth around the Sun.
- The Earth completes one round around its axis in 24 hours (one day). This type of rotation causes the sequence of day and night.
- The Earth completes one round around the Sun in $365\frac{1}{4}$ days (one year). This type of revolution causes the sequence of the four seasons.
- The Earth's axis is inclined and this causes the difference in length of the day and the night.



Questions signed by 📖 have been taken from the school book.

Questions on lesson two

1. Choose the correct answer :

1. The apparent movement of the Sun means that ....
   a. the Sun revolves around the Earth.
   b. the Earth rotates around its axis.
   c. the Earth revolves around planets.
   d. the Earth revolves around the Sun.
2. Changing the position of shadow of a fixed object during the day occurs due to the ....
   a. revolution of the Sun around the Earth.
   b. rotation of the Sun around its axis.
   c. rotation of the Earth around its axis.
   d. revolution of the Earth around the Sun.
3. The .... rotate(s) around itself and around the Sun.
   a. Sun b. Earth c. star d. (a),(b) and (c)
4. The Earth's axis is ....
   a. vertical. b. horizontal. c. inclined. d. all the previous answers.
5. The Earth rotates around its axis once every ....
   a. 24 hours. b. year. c. 365 hours. d. 24 days.
6. The Earth's axis is inclined and this causes ....
   a. sequence of day and night.
   b. sequence of the four seasons.
   c. the hours of day are not equal to the hours of night.
   d. (b) and (c).
7. 📖 Sequence of day and night occurs due to the ....
   a. revolution of the Earth around the Sun.
   b. rotation of the Earth around its axis.
   c. rotation of the Sun around its axis.
   d. all the previous answers.
8. 📖 The number of day hours is equal to the number of night hours in ....
   a. summer. b. winter.
   c. spring. d. all of the seasons.

9. The Earth revolves around the Sun once every ....
   a. 365 year. b. 24 years. c. $365\frac{1}{4}$ days. d. 24 hours.
10. The sequence of the four seasons of the year occurs due to the ....
   a. rotation of the Earth around its axis.
   b. revolution of the Earth around the Sun.
   c. revolution of the Moon around the Earth.
   d. rotation of the Sun around its axis.
11. During the winter season in northern hemisphere, ...
   a. day is longer than night. b. day and night are equal.
   c. night is longer than day. d. the Earth's axis is vertical.
12. Time of sunset − time of sunrise = ...
   a. length of day. b. length of night.
   c. length of year. d. path of planets.
13. 24 hours − length of day = ...
   a. the length of day. b. the read of sunset.
   c. (a) and (b). d. the length of night.

2. Put (✓) in front of the right statement and (×) in front of the wrong one, then correct it :

1. The Sun seems to be risen in the west. ( )
2. The Sun doesn't revolve around the Earth. ( )
3. The Earth revolves around the Sun once every 24 hours. ( )
4. The revolution of the Earth around the Sun causes the sequence of day and night. ( )
5. The difference in hours of day and night is because the Earth's axis is inclined. ( )
6. Length of night = 28 hours – length of day ( )
7. In winter and summer seasons, the day hours are equal to the night hours. ( )
8. The Earth rotates around its axis once every year. ( )
9. The sequence of the four seasons occurs due to the revolution of the Sun around the Earth. ( )



10. The length of day = read of sunrise – read of sunset. ( )
11. The Earth revolves around the Sun every $365\frac{1}{4}$ days. ( )
12. During the winter, day and night are equal. ( )
13. The day in summer season is longer than the night. ( )

3. Write the scientific term of each of the following :

1. A phenomenon occurs when the Earth rotates around its axis. (..................)
2. Time of sunset - time of sunrise. (..................)
3. A phenomenon occurs when the Earth revolves around the Sun. (..................)
4. A season in which day is longer than night. (..................)
5. Seasons, where the hours of day are nearly equal to those of night. (..................)
6. A season in which day is shorter than night. (..................)

4. Complete the following statements :

1. The Sun seems to be risen in ....
2. The apparent movement of the Sun is due to the rotation of ....
3. The Earth rotates around its axis once every ....
4. Sequence of day and night occurs due to the ....
5. The axis of the Earth is ....
6. The Earth's axis is inclined. This causes the difference between ....
7. Length of day equals ....
8. Length of night equals ....
9. When the Earth rotates around its axis, the part of the Earth that faces the Sun is in .... , while the part of Earth that doesn't face the Sun is in ....
10. The Earth revolves around the Sun once every .... and this period is called ....
11. The sequence of the four seasons occurs due to ....
12. The day in the .... season is longer than the day in .... season.

13. Day and night are nearly equal only during .... and .... seasons
14. The day is longer than night in ....
15. In the .... season, day is shorter than night.
16. The Earth revolves around the Sun once every .... , while it rotates around its axis once every ....
17. The phenomenon of sequence of .... results from the rotation of the Earth around its axis, while the phenomenon of .... sequence results from the revolution of the Earth around the Sun.
18. When the northern hemisphere is near to the Sun, the season in Egypt is ....

5. Give reasons for the following :

1. The apparent rotation of the Sun.
....
2. The movement of the shadow of a fixed object at different times of day.
....
3. The number of day hours is not equal to the number of night hours.
....
4. Sequence of day and night.
....
5. Sequence of the four seasons.
....
6. The day in summer is longer than the day in winter.
....

6. What happens when ... ?

1. The Sun faces part of the Earth.
....
2. The Sun doesn't face part of the Earth.
....
3. The Earth rotates around its axis.
....



4. The Earth doesn't rotate around itself.

....

5. The Earth doesn't revolve around the Sun.

....

6. The Earth revolves around the Sun once every year.

....

7. Look at the following table which represents time of sunrise and time of sunset, then answer :

Day	Time of sunrise	Time of sunset
	Hour : Minute	Hour : Minute
First day	6 : 43	5 : 43
Second day	5 : 44	7 : 44

1. Calculate the hours of daytime for each day.

....

....

....

....

2. Write the name of the suitable season for each day in the table.

....

8. What is the type of the phenomenon resulted from :

1. Rotation of the Earth around its axis.

....

2. Revolution of the Earth around the Sun.

....

9. Compare between the sequence of the day and night phenomenon and the sequence of the four seasons phenomenon.

....

....

....

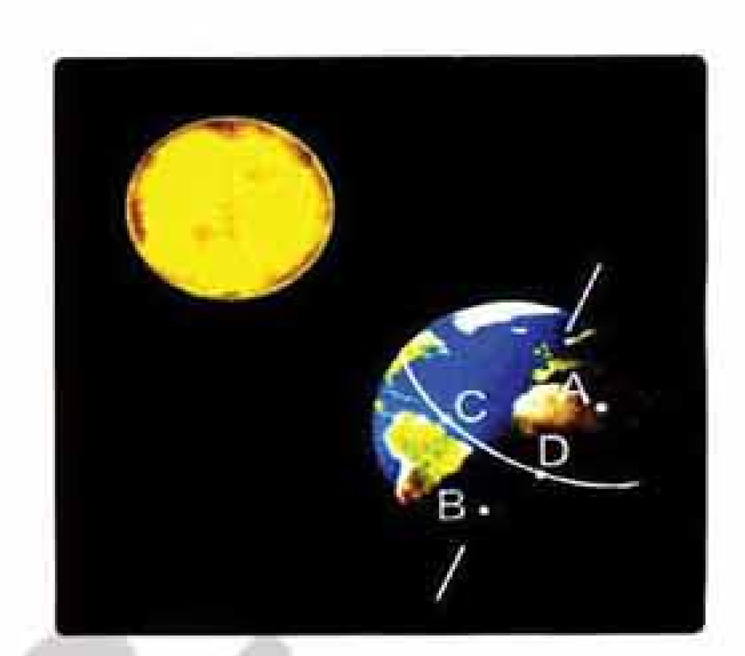
....



10. Complete the following table :

Day number	Length of day	Length of night	Hemisphere	Expected season
1	12 : 30	11 : 30	Northern	....
2	12	12	Southern	....
3	11 : 20	12 : 40	Southern	....

11. Look at the opposite figure, then answer the following questions :



1. Does Egypt (symbolized by A) lie in the southern hemisphere or the northern hemisphere ?
   ....
2. Is Egypt in day or night ?
   ....
3. If the number of hours of day is 11 , so Egypt is in the .... season.

12. Complete the following diagram :

Motion of the Earth includes

- Rotation of the Earth around its axis
  - That causes
  - The sequence of .... (2) ....
- Revolution of the Earth around ...... (1) ......
  - That causes
  - The sequence of .... (3) ....





Timss Questions

1. Here are four figures indicating the day and night during 24 hours, write the suitable seasons under each one :

■ night
□ day

(1)	(2)	(3)
....	....	....

2. What would happen if the Earth's axis becomes vertical ?

....

3. Choose the correct answer :

1. During .... season the day is the longest.
   a. summer b. winter c. spring d. fall
2. During the day, the shadow of a tree changes its position and moves around the tree because ....
   a. the Sun rotates around its axis.
   b. the Sun revolves around the Earth.
   c. the Earth revolves around the Sun.
   d. the Earth rotates around its axis.
3. During .... season the day is the shortest.
   a. summer b. winter c. spring d. fall

4. Complete the table below using the words between brackets :
(12 - more than 12 - shorter than - less than 12 - longer than - equal to)

(1) Autumn	(2) Summer	(3) Winter
Hours of day are .... hours and .... the hours of night.	Hours of day are .... hours and .... the hours of night.	Hours of day are .... hours and .... the hours of night.





Final Revision

Unit One : **Matter.**
Unit Two : **The Universe.**

Matter

UNIT ONE

Lessons of the unit :

1. Measuring tools.
2. Matter states and its changes.
3. Elements around us.
4. Physical and chemical changes.

Final Revision Includes

1. Definitions.
2. Importance or use.
3. Give reasons for.
4. What happens when...?
5. Important laws.
6. Measuring units.
7. Comparisons.
8. Activities.
9. Main points



Unit 1

First : Final Revision on Unit One

1 Definitions

Item	Definition
1. Matter :	- It is anything that has a mass and a volume. **Or** - It is everything that has a mass and occupies a part of space.
2. Mass :	It is the amount of matter that the object contains.
3. Volume :	It is the space that is occupied by the object (matter).
4. Solid matter :	A state of matter that has a definite shape and volume.
5. Liquid matter :	A state of matter that has a definite volume and an indefinite shape (takes the shape of its container).
6. Gaseous matter :	- A state of matter that hasn't a definite shape or volume. **Or** - A state of matter that takes the shape and volume of its container.
7. Melting process :	It is the change (transfer) of matter from the solid state to the liquid state by heating.
8. Evaporation process :	It is the change of matter from the liquid state to the gaseous state by heating.
9. Condensation process :	It is the change of matter from the gaseous state to the liquid state by cooling.
10. Freezing process :	It is the change of matter from the liquid state to the solid state by cooling.
11. Element :	It is the simplest form of matter that can't be analyzed (decomposed) into two substances or more.
12. Physical change of matter :	It is a change in the appearance (shape) of matter without any change in its structure (properties).
13. Chemical change of matter :	It is a change in the structure of the substance producing a new substance or new substances with different properties.

2 Importance or use

Item	Importance or use
1. Measuring ruler :	It is used to measure the length or the dimensions of a regular solid body.
2. Graduated tape :	It is used to measure the length of a body.
3. Common balance (two-pan balance) :	It is used to measure the mass of large objects as cheese or fruits.
4. Sensitive balance :	It is used to estimate the mass of tiny (small) objects as jewelleries and chemicals.
5. A graduated cylinder :	It is used to measure the volumes of liquids and irregular solid bodies.
6. Iron :	A metal used in making bridges , car chassis (car frames) , doors and street lights (lamp posts).
7. Aluminium :	A metal used in the manufacture of cooking pans , foil paper and some doorknobs.
8. Gold and silver :	They are metals used in making jewels.
9. Copper :	A metal used in making electric wires , statues and metallic coins.
11. Carbon (graphite) :	A non-metal used in the manufacture of the positive poles (electrodes) of dry batteries.

3 Give reasons for

1. **The car has a volume.**
   Because it occupies a certain space.
2. **• Glass is a matter.**
   • Air is a matter.
   Because it has a mass and a volume.
3. **When some pieces of stone are put (submerged) completely in a glass full of water, an amount of water is spilled out from the glass.**
   Because the pieces of stone have volume which replaces the volume of the spilled water.

4. You can't use water to measure the volume of a piece of sugar.
Because sugar is soluble in water.

5. Gold and copper are solids.
Because they have definite shapes and volumes.

6. Salt is a solid matter, while oil is a liquid matter.
Because salt has a definite shape and volume, while oil has a definite volume and an indefinite shape.

7. • Air is a gaseous matter.
• Gaseous matter is compressed in cylinders.
Because it doesn't have a definite shape or volume.
Or
Because it takes the shape and volume of its container.

8. The shape of water inside the cylindrical container differs from its shape inside the conical container.
Because water is a liquid matter that takes the shape of its container.

9. On putting a mixture of gravels and water in a refinery with minute holes, water passes, while gravels remain in the refinery.
Because water is a liquid matter that has indefinite shape, while gravels are solid matter that have definite shapes.

10. Oxygen has an indefinite shape and volume.
Because oxygen is a gaseous matter.

11. Ice changes into water if it is exposed to air.
Because ice acquires heat from air, so it melts and changes into water.

12. On making tea, water drops are formed on the cover of the teapot from inside.
Due to the condensation of water vapour on the cover of the teapot.

13. Water freezes when it is put in the freezer.
Because water changes into ice by cooling.

14. A piece of copper has a definite shape when we carry it from a vessel (container) to another one.
Because copper is a solid matter.

15. The glass bottle which is put in the freezer shouldn't be full of water.
Because when water changes into ice by cooling, the volume of ice is bigger than the volume of water, so the bottle will explode.

16. Sulphur is an element.

Because it can't be analyzed into two substances or more.

17. Iron and copper are metals.

Because :

- They are shiny.
- They can be bent or hammered.
- They have high melting and boiling points.
- They are good conductors of heat and electricity.

18. Sulphur is considered as a non-metal.

Because :

- It is not shiny.
- It can't be bent or hammered.
- It has low melting and boiling points.
- It is a bad conductor of heat and electricity.

19. Gold and silver are used in making jewellery.

Because they can be bent or re-shaped as they are metals.

20. Copper is used in the manufacture of electric wires.

Because copper is a good conductor of electricity and can be bent or re-shaped as it is a metal.

21. Aluminium can be bent or hammered, but the piece of coal (carbon) can't be.

Because aluminium is a metal, but coal (carbon) is a non-metal.

22. Cooking pans are made up of aluminium.

Because aluminium is a good conductor of heat and can be bent as it is a metal.

23. Aluminium is considered as a metal , but bromine is a non-metal.

Because aluminium is shiny , can be bent or hammered , has high melting and boiling points and is a good conductor of heat and electricity , but bromine is not.

24. Carbon (Graphite) is a non-metal although it is used in making the positive electrode of the dry cell.

Because it is a good conductor of electricity.

25. We mustn't approach a nail to an electric source.

Because the nail is made up of iron which conducts electricity as it is a metal.

26. The melting point of an iron nail is higher than that of sulphur crystals.

Because iron is a metal, but sulphur is a non-metal.

27. Copper is used in making statues and metallic coins.

Because copper can be bent or hammered to form sheets as it is a metal.

28. Car chassis, doors and bridges are made up of metals not of non-metals.

Because metals can be bent or hammered to form sheets, but non-metals can't be bent or hammered.

29. Iron is used in making bridges and lamp posts.

Because it can be bent or hammered to form sheets as it is a metal.

30. • **Melting of ice is a physical change.**
• **Melting of wax is a physical change.**

Because it causes a change in the shape of ice (or wax) without any change in its structure.

31. • **Burning a piece of paper (or bread or wood or sugar) is a chemical change.**
• **Fermentation of milk is a chemical change.**

Because this causes a change in the shape and structure of paper (or wood or bread or milk or sugar) producing a new substance with new properties.

32. Formation of a layer of rust on the surface of wet iron wire.

Due to the reaction between iron and both water and oxygen producing a new substance with new properties.

33. The flavour of sugar changes after heating it strongly.

Because heating sugar strongly is a chemical change as it causes a change in the shape and structure of sugar producing a new substance with new properties.

34. Sugar keeps its flavour after dissolving it in water.

Because dissolving sugar in water is a physical change as it changes its shape without any change in its structure.

35. **A black substance is produced after burning a piece of paper.**
Because burning a piece of paper is a chemical change as the shape and structure of paper change producing a new substance with new properties.

36. **Formation of clouds and rains is a physical change.**
Because clouds and rains change the shape of water without any change in its structure.

4 What happens when...?

1. **A body is submerged completely in a cylinder full of a liquid.**
The liquid is spilled out from the cylinder, because the volume of the body = the volume of the spilled water.

2. **An amount of milk is poured from a graduated cylinder into a test tube.**
The volume of milk doesn't change, but its shape changes by changing its container.

3. **You put three equal amounts of water in three different containers.**
The volume of water doesn't change, but its shape changes by changing the container.

4. **You blow air in different balloons.**
The volume and shape of air change by changing the balloon.

5. **Rising of the temperature of a piece of ice.**
Ice melts and changes into water.

6. **Boiling water and exposing the product to a cold glass sheet.**
Water changes into water vapour then water vapour condenses on the cold glass sheet and changes into water droplets.

7. **You put a bottle of water in the freezer.**
Water freezes and changes into ice.

8. **• You take out a bottle of water from the fridge and leave it for a while.**
• You leave a glass filled with ice in air for few minutes.
Water vapour in air condenses on the outer surface of the bottle or the glass forming drops of water.

9. **Boiling water for a long period of time.**
The amount of water decreases as it evaporates and changes into water vapour.



10. Putting a bottle full of water in the freezer for 24 hours.

The bottle will explode as the volume of ice increases.

11. You connect a graphite rod of a pencil with a circuit has an electric lamp and why ?

The electric lamp lights, because carbon (graphite) is a good conductor of electricity.

12. You put a piece of wax at one end of sulphur bar and expose the other end to a candle flame and why ?

The piece of wax doesn't melt, because sulphur is a bad conductor of heat as it is a non-metal.

13. You heat a piece of copper and some crystals of sulphur to high temperature.

The sulphur crystals melt before the piece of copper.

14. You fix a piece of wax at one end of an iron bar and expose the other end to a candle flame and why ?

The piece of wax melts, because iron is a good conductor of heat as it is a metal.

15. You connect some sulphur crystals with an electric circuit that has a lighted lamp and why ?

The lamp will go out, because sulphur is a bad conductor of electricity as it is a non-metal.

16. A piece of paper is burned.

A chemical change takes place and black ash is formed.

17. We heat some pieces of ice strongly.

A physical change takes place and ice changes into water, then to water vapour.

18. Adding yeast to doughs, then baking. Why ?

Swelling of doughs occurs, because a chemical change takes place.

19. Putting a piece of dry iron wire in a jar filled with dry oxygen.

The piece of dry iron wire doesn't change.

20. Putting a little amount of sugar in a beaker over a flame.

A chemical change takes place and a brown substance is formed.

21. Putting a bottle of water in the freezer for a day.
A physical change takes place and water changes into ice.

22. A bright shiny iron nail is moistened and exposed to air.
The iron nail rusts, where a brittle brown layer is formed on the nail.

23. Leaving a dish containing salty water in the sun rays for a period of time.
A physical change takes place where the water evaporates and the salt remains in the dish.

5 Important laws

- 1 Metre (m) = 100 centimetres (cm)
- 1 Kilometre (km) = 1000 metres (m)
- 1 Kilogram (kg) = 1000 grams (g)
- 1 Ton = 1000 kilograms.
- 1 Litre (L) = 1000 millilitres (ml) = 1000 cubic centimetres (cm^3)
- 1 Millilitre (ml) = 1 cubic centimetre (cm^3)
- The volume of a regular solid body = Length × Width × Height.
- The volume of an irregular solid body
  = Volume of liquid and the irregular solid body (V_2) – Volume of liquid only (V_1).

6 Measuring units

Unit	Its use
1. Centimetre (cm) :	It is used to measure the small lengths.
2. Metre (m) :	It is used to measure the large lengths.
3. Kilometre (km) :	It is used to measure very large lengths.
4. Gram (gm) :	It is used to measure small masses as jewellery and chemicals in laboratories.
5. Kilogram (kg) :	It is used to measure large masses as fruits and vegetables.
6. Ton :	It is used to measure the mass of heavy objects.
7. Litre or millilitre :	It is used to measure the volumes of liquids.
8. Cubic metre or cubic centimetre :	It is used to measure the volumes of solids and liquids.



7 Comparisons

1. Comparison between the three states of matter :

State / Aspect	Solids	Liquids	Gases
Volume :	Definite.	Definte.	Indefinite (take the volumes of their containers).
Shape :	Definite.	Indefinite (take the shapes of their containers).	Indefinite (take the shapes of their containers).
Examples :	Iron – stone – ice.	Oil – alcohol – water.	Oxygen – nitrogen – water vapour.

2. Comparison between metals and non-metals :

Points of comparison	Metals	Non-metals
1. Luster (shining) :	They have metallic luster (are shiny) if they are pure.	They don't have metallic luster (are not shiny).
2. Malleability or hammering :	They are malleable (can be bent or hammered to form sheets).	They are not malleable (can't be bent or hammered).
3. Conductivity of heat :	They are good conductors of heat.	They are bad conductors of heat.
4. Conductivity of electricity :	They are good conductors of electricity.	They are bad conductors of electricity except **carbon**.
5. Melting and boiling points :	They have high melting and boiling points.	They have low melting and boiling points.
6. The state at room temperature :	They are solids except **mercury** which is liquid.	They are : – **Solids** as sulphur, carbon and phosphorus. – **Liquids** as bromine. – **Gases** as oxygen and nitrogen.



3. Comparison between the physical change and the chemical change :

Points of comparison	Physical change	Chemical change
1. Change in the appearance (shape) of the substance :	– Takes place.	– Takes place.
2. Change in the structure of the substance :	– Doesn't take place.	– Takes place.
3. Examples :	– Melting of ice. – Melting of wax. – Evaporation of water.	– Burning of sugar. – Burning of a candle. – Rusting of iron.

4. Comparison between burning of a candle and melting of a candle :

Points of comparison	Burning of a candle	Melting of a candle
1. Change in the appearance (shape) of the substance :	– Takes place.	– Takes place.
2. Change in the structure of the substance :	– Takes place.	– Doesn't take place.
3. Type of change :	– Chemical change.	– Physical change.

5. Comparison between dissolving of sugar and combustion of sugar :

Points of comparison	Dissolving of sugar	Combustion of sugar
1. Change in the shape of the substance :	– Takes place.	– Takes place.
2. Change in the structure of the substance :	– Doesn't take place.	– Takes place.
3. Type of change :	– Physical change.	– Chemical change.

6. Comparison between cutting of fruits and fermentation of fruits :

Points of comparison	Cutting of fruits	Fermentation of fruits
1. Change in the appearance (shape) of the substance :	– Takes place.	– Takes place.
2. Change in the structure of the substance :	– Doesn't take place.	– Takes place.
3. Type of change :	– Physical change.	– Chemical change.

7. Comparison between charring of paper and paper recycling :

Points of comparison	Charring of paper	Paper recycling
1. Change in the appearance (shape) of matter :	– Takes place.	– Takes place.
2. Change in the structure of the substance :	– Takes place.	– Doesn't take place.
3. Type of change :	– Chemical change.	– Physical change.

8. Comparison between rusting of iron and melting of iron :

Points of comparison	Rusting of iron	Melting of iron
1. Change in the shape of matter :	– Takes place.	– Takes place.
2. Change in the structure of matter :	– Takes place.	– Doesn't take place.
3. Type of change :	– Chemical change.	– Physical change.

8 Activities

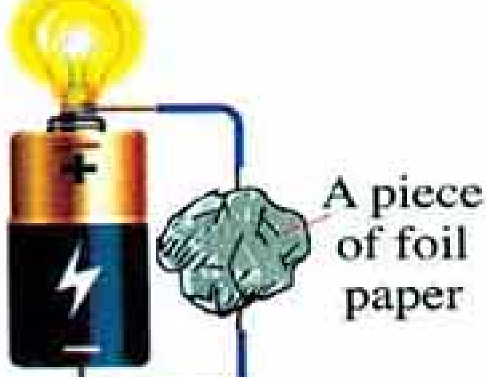
Activity 1 To prove the ability of metals and non-metals to conduct electricity.

Steps:

1. Form an electric circuit with a graphite rod (carbon) as shown in figure.
2. Repeat the previous step replacing the graphite rod with :
   - A piece of foil paper which is made of aluminium.
   - A coin which is made of copper.
   - A piece of sulphur.



A graphite rod



A coin



Observation:

The electric lamp lights in all cases except sulphur.

Conclusion:

Metals are good conductors of electricity, but non-metals are bad conductors of electricity except carbon which is a good conductor of electricity.

Activity 2 To prove the ability of metals and non-metals to conduct heat.

Steps:

1. Bring bars of iron, copper, aluminium and carbon.
2. Put a piece of wax at one end of each bar and expose the other end to the flame of a candle for some times.

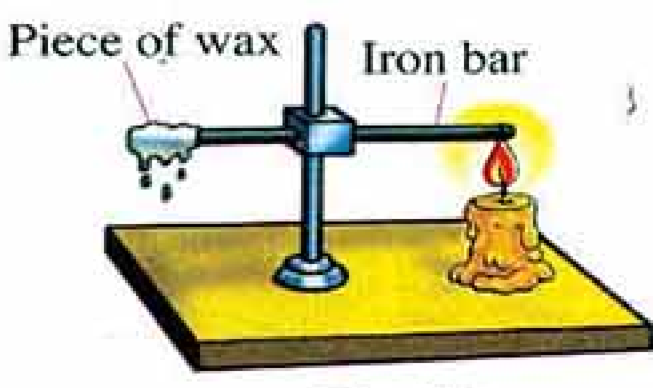


Fig. (A)

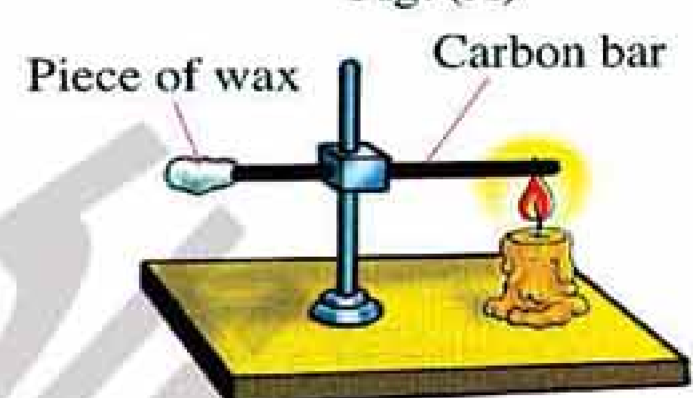


Fig. (B)

Observations:

- Wax melts at different times in case of iron, copper and aluminium bars.
- Wax doesn't melt in case of carbon bar.

Conclusion:

Metals are good conductors of heat, while non-metals are bad conductors of heat.

9 Main points

1. **How can you estimate the volume of an amount of a liquid ?**
   - Bring the graduated cylinder, then pour an amount of water or any liquid in it.
   - Record the reading of the cylinder at the lower level of the water surface.
2. To estimate the volume of an amount of a liquid, you must put it in **a graduated cylinder** and your eyes must be in a **horizontal direction** at the lower point of the surface of the liquid.



3. **Equal volumes** of different substances have **different masses**.

4. Ice, sugar, iron, wood, gold, silver and copper are examples for **solid matter**.

5. Water, oil, alcohol, mercury and kerosene are examples of **liquid matter**.

6. Air and its components (oxygen, water vapour, carbon dioxide, nitrogen) are examples of **gaseous matter**.

7. Matter exists in only **one state** at the ordinary room temperature.

8. Matter can be changed from one state to another by **heating** or **cooling.**

9.



10. Mercury is the only **liquid metal.**

11. Bromine is the only **liquid non-metal.**

12. Melting of a candle is **a physical change**, while burning of a candle is **a chemical change.**

The Universe

UNIT TWO

Lessons of the unit :

1. Stars and planets.
2. The motion of the Sun and the Earth.

Final Revision Includes

1. Definitions.
2. Importance or use.
3. Give reasons for.
4. What happens when...?
5. Comparisons.
6. Activities.
7. Main points.



Second : Final Revision on Unit Two

1 Definitions

Item	Definition
1. Stars :	– They are lightning (self-shining) celestial bodies that appear in the sky at night and have different sizes. **Or** – They are lightning bodies with different shapes that lie in the vast vacuum which is known as space.
2. The Sun :	– It is a medium-sized star (self-shining body) that emits light and heat. **Or** – It is the biggest body in the solar system that lies at the center of the solar system.
3. Planets :	They are dark celestial bodies that revolve around the Sun in fixed orbits.
4. Moons :	They are dark bodies revolve around the planets and reflect the sunlight falling on them.

2 Importance or use

Item	Importance or use
1. The Sun :	It is the main source of heat and light on the Earth's surface.
2. Rotation of the Earth around its axis :	It causes the sequence of day and night.
3. Revolution of the Earth around the Sun :	It causes the sequence of four seasons.



3 Give reasons for

1. **The big stars seem small in size.**
   Because they are very far (distant) from us.
2. **The Sun is a self-shining body.**
   Because it radiates heat and light.
3. **The Sun seems bigger to us than the other stars.**
   Because the Sun is nearer to us than the other stars.
4. **The Sun is a star, while the Earth is a planet.**
   Because the Sun is a lightning celestial body, while the Earth is a dark celestial body that revolves around the Sun.
5. **Planets and moons have some similar characteristics.**
   Because both of them are dark space bodies.
6. **Although the moon lights at the sky, we don't consider it as a star.**
   Because the moon is a dark body that reflects the sunlight falling on it.
7. **Jupiter is a planet.**
   Because it is a dark body that revolves around the Sun.
8. **Although the moon is a dark body, we see it shiny.**
   Because it reflects the sunlight falling on its surface.
9. **Uranus planet is named "the cold planet".**
   Because it is very far from the Sun.
10. **The apparent rotation of the Sun.**
    Due to the rotation of the Earth around its axis.
11. **The number of day hours is not equal to the number of night hours.**
    Because the Earth's axis is inclined.
12. **Sequence of day and night.**
    Due to the rotation of the Earth around its axis.
13. **Sequence of the four seasons.**
    Due to the revolution of the Earth around the Sun.

14. **The movement of shadow at different times of day.**
    Due to the rotation of the Earth around its axis once every 24 hours.

15. **The day in summer is longer than the day in winter.**
    Because the apparent orbit of the Sun in summer is longer than the apparent orbit of the Sun in winter.

4 What happens when...?

1. **The Sun faces a part of the Earth.**
   This part of Earth is at daytime.

2. **The Sun doesn't face a part of the Earth.**
   This part of Earth is at night.

3. **The Earth's axis becomes vertical.**
   The number of hours at day equals the number of hours at night.

4. **The Earth rotates around its axis.**
   It causes the sequence of day and night.

5. **The Earth revolves around the Sun once every year.**
   It causes the sequence of the four seasons.

5 Comparisons

1. Comparison between star, planet and Moon :

Star	Planet	Moon
– It is a shiny body. – It emits heat and light. – It rotates in the space. ***Ex. :*** The Sun.	– It is a dark body. – It doesn't emit (radiate) heat or light. – It revolves in the space around the Sun. ***Ex. :*** The Earth.	– It is a dark body. – It reflects sunlight falling on it. – It revolves in the space around the planet. ***Ex. :*** The moon.

2. Comparison between the types of movement of the Earth :

Rotation of Earth around its axis	Revolution of Earth around the Sun
1. It rotates around its axis once every 24 hours. 2. This movement causes the sequence of day and night.	1. It revolves around the Sun once every $365\frac{1}{4}$ days. 2. This movement causes the sequence of four seasons.

6 Main Points

1. **The solar system** includes the Sun , eight planets , moons , asteroids , meteors , meteoroids and comets.
2. **Planets are arranged according to :**
   a. Their distance from the Sun (beginning from the nearest to the farthest) :
   Mercury – Venus – Earth – Mars – Jupiter – Saturn – Uranus – Neptune.
   b. Their sizes (beginning from the biggest to the smallest) :
   Jupiter – Saturn – Uranus – Neptune – Earth – Venus – Mars – Mercury.
3. The nearest planet to the Sun is **Mercury.**
4. The farthest planet from the Sun is **Neptune** and it is also called **the blue planet.**
5. The biggest planet is **Jupiter (giant planet).**
6. The smallest planet is **Mercury.**
7. The nearest two planets to the Earth are **Venus and Mars.**
8. **Venus** is the most beautiful planet.
9. **Mars** is called **the red planet** because its rocks contain iron.
10. **Saturn** is characterized by having coloured rings around it.
11. **Uranus** is the **cold planet.**
12. **The Sun** is the biggest celestial body in the solar system.
13. **The moon** is the nearest neighbour to the Earth.
14. **The Earth** is the planet where we live, it is a watery planet because water occupies most of it.
15. **The Earth** consists of two hemispheres which are **the northern hemisphere** and **the southern hemisphere.**
16. Solar year equals **365 $\frac{1}{4}$ days.**

Unit 1 Lesson 1

Test yourself 1

25

Good
Very Good
Excellent

1 [A] Complete the following sentences : *(5 marks)*

1. The unit of measuring the mass of gold is ....
2. We can measure the length by some units as .... or ....
3. There are two types of balances which are .... and ....
4. One kilogram = ... grams.
5. Metre is the measuring unit of ...., while gram is the measuring unit of ....

[B] Compare between the following according to their measuring units :

Mass	Volume
....	....
....	....
....	....

2 [A] Write one use for each of the following : *(5 marks)*

1. Graduated tape : ....
2. Two-pans balance : ....
3. Graduated cylinder : ....

[B] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The mass of banana fruits.	a. Litre.
2. The volume of milk.	b. Gram.
3. The length between two cities.	c. Kilogram.
4. The mass of a golden ring.	d. Kilometre.

1. ....
2. ....
3. ....
4. ....

Test yourself

3 Write the scientific term : *(5 marks)*

1. Everything occupies a space and has a mass. (....................)
2. A tool used to estimate the volume of the irregular solid bodies. (....................)
3. A tool used to measure the mass of jewellery. (....................)
4. The amount of matter in an object. (....................)
5. One of the tools that is used to measure the length of any object. (....................)

4 [A] What is meant by volume : *(5 marks)*

....

[B] Put (✓) or (✗), then correct the wrong ones :

1. We measure the volume of a liquid by a graduated cylinder. (   )

....

2. 1 Litre = 100 cm^3 (   )

....

3. The unit of measuring small masses is gram. (   )

....

4. Sensitive balance is used to measure the mass of jewels. (   )

....

5 [A] Give reason for : *(5 marks)*

A ruler is a matter.

....

[B] Choose the correct answer :

1. The volume of a solid material is measured by ....unit.
   a. cm   b. cm^2 c. cm^3 d. m
2. The measuring unit of mass is ....
   a. cm^3 b. cm^2 c. gm.   d. km.
3. .... is used to measure the volume of liquid.
   a. Graduated cylinder   b. Balance
   c. Ruler   d. Measuring tape

Unit 1 Lesson 1

Test yourself 2

25

Good
Very Good
Excellent



1 Complete the following sentences : *(5 marks)*

1. When we put an amount of liquid in a graduated cylinder, the reading of the cylinder indicates the .... of the liquid.
2. Equal volumes of different matter have .... masses.
3. The volume of a brick = ... × .... × ....
4. We use .... to measure the volume of an irregular piece of stone, while we use .... to measure its mass.
5. Graduated ruler is used to measure .... while common balance is used to measure ....

2 [A] Give reason for : *(5 marks)*

When a body is submerged completely in a cylinder full of a liquid, the liquid is spilled out of the cylinder.

....

[B] Calculate the volume of a box that its length is 7 cm, its width 4 cm and its height is 3 cm.

....

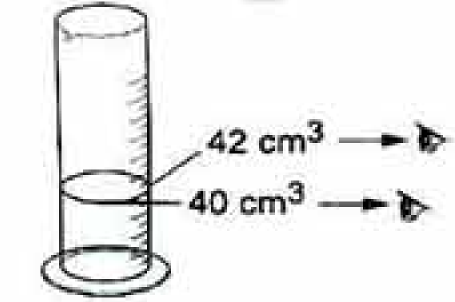
....

[C] Choose the odd word out :

1. cm^3 - m^3 - cm^2 - L (..................)
2. Gram - Litre - Kilogram - Ton. (..................)
3. Cubic centimetre - Metre - Centimetre - Kilometre. (..................)

3 Choose the correct answer : *(5 marks)*

1. The volume of an irregular solid object is estimated by using a ....
   a. graduated cylinder containing water. b. graduated ruler.
   c. graduated tape. d. common balance.
2. In the opposite figure, the correct volume of the water is ....
   a. 42 cm^3. b. 41 cm^3.
   c. 40 cm^3. d. 2 cm^3.





Test yourself

3. If the dimensions of your book are 10 , 5 , 2 cm , so the volume of the book equals ………… cm^3.

a. 17 b. 52 c. 100 d. 34

4. We use ………… to measure the mass of fruits.

a. graduated tape
b. graduated cylinder
c. measuring ruler
d. common balance

5. The measuring unit(s) of volume is(are) …………

a. litre.
b. cubic metre.
c. cubic centimetre.
d. (a) , (b) and (c).

4 **[A] Put (✓) in front of the right statement and (✗) in front of the wrong one, then correct it :** *(5 marks)*

1. The volume of one litre of water equals one litre of juice. ( )

…………………………………………………………………………

2. The graduated ruler is used to estimate the volume of a small irregular piece of stone. ( )

…………………………………………………………………………

3. The ton unit is used to measure the mass of vegetables and fruits. ( )

…………………………………………………………………………

4. Sensitive balance is used to measure the mass of jewels. ( )

…………………………………………………………………………

[B] You have measuring cylinder and water.
How can you use these materials to estimate the volume of a coin ?

…………………………………………………………………………

…………………………………………………………………………

…………………………………………………………………………

5 **You have 4 marbles that are equal in volume. When you put them in a graduated cylinder of 100 cm^3 of water, the water level raised up to 120 cm^3 Calculate the volume of each marble :** *(5 marks)*

…………………………………………………………

…………………………………………………………

…………………………………………………………

…………………………………………………………

…………………………………………………………

…………………………………………………………

100 cm^3 — V_1 — 120 cm^3 — V_2 — 4 Pieces of marbles



Unit 1 Lesson 2

Test yourself 3

25

Good Very Good Excellent

1 Complete the following : *(5 marks)*

1. The states of matter are solid, ... and ....
2. Water and......... are examples for matter that exist in .... state.
3. Liquids have definite .... but they don't have definite ....
4. Air is a ....matter, because it doesn't have a definite .... and volume.
5. Matter can be pressed in case of......... state.
6. The .... substances have definite shapes and volumes.

2 [A] Give reason for each of the following : *(5 marks)*

1. Iron is a solid matter

....

2. Gases take the shapes and volumes of their containers.

....

3. Milk is a liquid.

....

[B] Cross the different word out, then write the scientific term for the remaining words :

1. Oil – Milk – Copper – Kerosene.
   - The different word is ....
   - The scientific term is ....
2. Water vapour – Oxygen gas – Air – Alcohol.
   - The different word is ....
   - The scientific term is ....

3 Choose the right answer : *(5 marks)*

1. .... have indefinite shapes and definite volumes.
   a. Copper and iron b. Liquids
   c. Gases d. Solids
2. All the following substances are solid materials except ....
   a. copper. b. iron.
   c. wood. d. oil.

Test yourself

3. Water vapour is an example of .... state of matter.
   a. gaseous b. liquid c. solid d. (a) , (b) and (c)
4. Gaseous materials have ....
   a. definite volumes. b. indefinite shapes.
   c. indefinite volumes. d. (b) and (c).
5. All the following substances have definite shapes and volumes except ....
   a. wood. b. salt. c. copper. d. oil.

4 **[A] Put (✓) or (✗) :** *(5 marks)*

1. Wood, water and iron are solid substances. (   )
2. Solids and gases have definite volumes. (   )
3. Water is a liquid matter. (   )
4. Liquids have definite shapes and volumes. (   )

[B] Look at the opposite figure, then answer the following questions :

During pouring the water from container (a) into container (b) :

20 cm^3

(a) (b)

1. Does the volume of water change ? ....
   a. Yes. b. No.
2. Does the shape of water change ? ....
   a. Yes. b. No.
3. What do you conclude from this activity ?

....
....

5 **[A] Compare between solids, liquids and gases in the following table according to the shape only :** *(5 marks)*

Point of comparison	Solids	Liquids	Gases
Shape :	....	....	....

[B] Write the scientific term :

1. They change their shapes according to the shape of container. (..............)
2. They have definite shapes and volumes. (..............)
3. The state of matter that has indefinite shape and definite volume. (..............)
4. A matter that its shape and volume change according to its container.
(..............)



Unit 1 Lesson 2

Test yourself 4

25

Good Very Good Excellent

1 Complete the following : *(5 marks)*

1. The continuity of decreasing water temperature changes it from .... state to .... state.
2. Evaporation is the change of matter from .... state to .... state by heating.
3. Water freezes by .... and evaporates by heating.
4. Freezing is the change of .... into .... by cooling.
5. Water vapour condenses when it touches a .... surface.
6. Evaporation process is opposite to ....process, while melting process is opposite to ....process.

2 [A] Give reasons for : *(5 marks)*

1. The glass bottle which is put in the freezer of the refrigerator shouldn't be full of water.
   ....
   ....
2. Appearance of some water droplets on the plant leaves and cars in the early morning.
   ....
   ....
3. A big amount of butagas can be compressed inside cylinders.
   ....
   ....

[B] Correct the underlined words :

1. Water <u>condenses</u> by heating. (..............)
2. <u>Evaporation</u> is the change of matter from the solid state to the liquid state. (..............)
3. Cooling causes condensation of water vapour and <u>evaporation</u> of water. (..............)
4. <u>Condensation</u> is the change of matter from liquid state into solid state. (..............)

Test yourself

3 Write the scientific term : (5 marks)

1. The transfer of ice into water. (..............)
2. The change of matter from liquid state into gaseous state by heating. (..............)
3. Substances that freeze when they are exposed to cold temperature. (..............)
4. The change of matter from solid state into liquid state. (..............)
5. Substances that evaporates when they are heated. (..............)

4 [A] Choose the correct answer : (5 marks)

1. The change of matter from gaseous state to liquid state by cooling is known as .... process.
   a. melting b. condensation c. freezing d. evaporation
2. .... is the change of matter from liquid state to solid state.
   a. Condensation b. Melting c. Freezing d. Evaporation
3. The change of matter from the liquid state into gaseous state is called ....
   a. condensation. b. evaporation. c. melting. d. freezing.

[B] What happens when...?

1. A plastic cup containing ice left outside the refrigerator.
   ....
2. A bottle of water is put in the freezer.
   ....

5 [A] Look at the opposite figure, then write your observation and conclusion : (5 marks)

1. Observation :
....
2. Conclusion :
....

A cup of ice

[B] Complete the following diagram :

By heating
Melting
....
Solid Liquid Gas
....
Condensation
By..............

Unit 1 Lessons 1 & 2

Test yourself 5

25

Good · Very Good · Excellent

1 Complete the following sentences : *(5 marks)*

1. .... is the measuring tool of the volumes of liquids and .... solid bodies.
2. By cooling, water changes from .... state to .... state.
3. Mass is the .... of matter that the object contains.
4. Milk has definite ....
5. Two metres equal .... centimetres., while two kilograms equal .... grams.
6. By .... the temperature of water vapour it changes from gaseous state to .... state.

2 [A] What happens when ... ? *(5 marks)*

1. Rising the temperature of ice.

....

2. You submerge a small stone completely in a cylinder full of water.

....

[B] Correct the underlined words :

1. Boiling is the change of liquids into **solids**. (...............)
2. Equal volumes of different substances have **equal** masses. (...............)
3. The **sensitive balance** is used to measure the mass of fruits and vegetables. (...............)

3 [A] Write the scientific term : *(5 marks)*

1. The space that is occupied by matter. (...............)
2. A change of matter from liquid state to solid state by cooling. (...............)
3. A state of matter which has a definite shape and a definite volume. (...............)

[B] Give reasons for :

1. You can't use water to measure the volume of a piece of sugar.

....

2. The glass bottle shouldn't be full of water when you put it in the freezer.

....

....

Test yourself

4 Choose the correct answer : *(5 marks)*

1. Matter has ………… states.
   a. two b. three c. four d. five
2. The volumes of liquids are measured in ………… unit.
   a. cm b. cm^2 c. m d. ml
3. Anything occupies a space and has a mass is …………
   a. element. b. molecule. c. matter. d. no correct answer.
4. We use ………… to measure the length.
   a. common balance b. sensitive balance
   c. measuring cylinder d. measuring tape
5. The change of ice into water is accompanied by …………
   a. an increase in volume. b. an increase in temperature.
   c. a decrease in temperature. d. evaporation process.

5 [A] Choose from column (B) what suits it in column (A) : *(5 marks)*

(A)	(B)
1. Evaporation process 2. Condensation process 3. Liquid matter 4. Gaseous matter	a. Has a definite volume. b. Change of matter from the liquid state to the gaseous state. c. Change of matter from the gaseous state to the liquid state. d. Has an indefinite volume.

1. ………………… 2. ………………… 3. ………………… 4. …………………

[B] A graduated cylinder contains 60 cm^3 of water. When 6 equal-sized marbles were put in it, the level of water became 90 cm^3.

Complete the following :

a. The volume of 6 marbles = ……………………………………………

……………………………………………………………

b. The volume of each marble = ……………………………………………

……………………………………………………………





Unit 1 Lesson 3

Test yourself 6

25

Good
Very Good
Excellent

1 Complete the following : (5 marks)

1. Iron has ………… melting point, whereas sulphur has ………… melting point.
2. All non-metals are bad conductors of …………
3. Cooking pans are made of …………, while the positive poles of the batteries are made of …………
4. Metals are ………… at the ordinary temperature except ………… which is a liquid.
5. The poles of the electric cells are made up of ……….
6. Aluminium is …………, while carbon is …………

2 Choose the correct answer : (5 marks)

1. An element that is a good conductor of heat and electricity is …………
   a. carbon. b. copper. c. sulphur. d. oxygen.
2. Which of the following substances doesn't have metallic luster ? …………
   a. Iron. b. Copper. c. Sulphur. d. Gold.
3. The liquid metallic element is ……….
   a. bromine. b. mercury.
   c. sodium. d. carbon.
4. All the following elements are malleable and can be bent except …………
   a. gold. b. silver. c. copper. d. sulphur.
5. Gold and silver are used in manufacturing of ……….
   a. bridges. b. jewels.
   c. doors. d. car frames.

3 [A] Correct the underlined words : (5 marks)

1. All metals are in solid state at normal temperature except **bromine** which is a liquid. (……………)
2. **Sulphur** is a non-metal which is a good conductor of electricity. (……………)
3. **Aluminium** element is used in manufacturing of positive poles of dry cells (batteries). (……………)

[B] Give reason for each of the following :

1. Iron, copper and aluminium are good conductors of heat.

....

2. Graphite (carbon) is used in the manufacture of the dry cells.

....

4 [A] Write the name and the type of the element(s) which is (are) used in : *(5 marks)*

1. Making jewellery.
   a. Name : .... b. Type : ....
2. Making the positive pole of batteries.
   a. Name : .... b. Type : ....
3. Making electric wires.
   a. Name : .... b. Type : ....

[B] Look at the following figure, then answer the following questions :

1. What is your observation ?

....

2. What is your conclusion ?

....

5 [A] Compare between metals and non-metals : *(5 marks)*

Points of comparison	Metals	Non-metals
1. Heat conduction :	....	....
2. Melting point :	....	....
3. Examples :	....	....

[B] Write the scientific term :

1. A group of elements that doesn't have luster, bad conductors of heat and they are not malleable. (...............)
2. An element used in making status and metallic coins. (...............)

Unit 1 Lesson 3

Test yourself 7

25

Good Very Good Excellent

1 Complete the following : *(5 marks)*

1. Bromine is a liquid ………… , while mercury is a liquid …………
2. Iron is a good conductor of ………. and ……….
3. The group of elements that doesn't have luster is known as ………… such as ……….
4. All metals are ………… conductors of heat, but non-metals are ………. conductors of heat.
5. Gold is ………… , while carbon is …………

2 [A] Give reasons for : *(5 marks)*

1. Aluminium is used in making cooking pots.

……………………………………………………………………………………

2. Using copper in manufacturing of electric wires.

……………………………………………………………………………………

……………………………………………………………………………………

[B] Put (✓) or (✗) :

1. Both iron and sulphur melt at the same temperature. ( )
2. Graphite is a non-metal that is a good conductor of electricity. ( )
3. Copper and sulphur have high melting point. ( )
4. Aluminium is used in making bridges and lamp posts. ( )
5. Carbon and sulphur are bad conductors of heat. ( )
6. Iron, aluminium, copper and carbon are non-metals. ( )

3 [A] Cross the different word out : *(5 marks)*

1. Bromine – iron – phosphorus – sulphur. (……………)
2. Aluminium – mercury – iron – copper. (……………)
3. Carbon – bromine – phosphorus – sulphur. (……………)

[B] Write the scientific term :

1. It is the simplest form of matter that can't be decomposed into two substances or more. (...............)
2. Elements that have metallic luster and have the ability to conduct electricity. (...............)
3. A liquid metal. (...............)

4 Give one use for each of the following : *(5 marks)*

1. Gold and silver : ....
2. Aluminium : ....
3. Carbon : ....
4. Iron : ....
5. Copper : ....

5 [A] Choose from column (B) what suits it in column (A) : *(5 marks)*

(A)	(B)
1. Mercury. 2. Copper and sulphur. 3. Bromine. 4. Oxygen.	a. Compounds. b. Gaseous non-metal at the ordinary room temperature. c. Elements. d. Liquid non-metal. e. Liquid metal.

1. .... 2. .... 3. .... 4. ....

[B] Look at the opposite figure, then answer the following questions :

1. Label the figure :
   (a) ....
   (b) ....
2. Observation :
   ....
3. Conclusion :
   ....

Lamp
(b)
(a)
Iron nail

Unit 1 Lessons 1, 2 & 3

Test yourself 8

25

Good Very Good Excellent

1 Complete the following sentences : *(5 marks)*

1. .... is used in making foil paper, while copper is used in ....
2. Water vapour is an example of .... state, while ice is an example of .... state.
3. Kilogram is the unit of measuring .... , while .... is the unit of measuring length.
4. The positive poles of the .... are made up of ....
5. Mercury is the only .... metal, while .... is the only liquid non-metal.

2 [A] Give reasons for : *(5 marks)*

1. We mustn't approach a nail to an electric source.

....

2. Oxygen is compressed in cylinders.

....

3. Iron is used in making bridges.

....

[B] A box whose length equals 6 cm., its width is 3 cm. and its height is 2 cm. Calculate its volume.

....

....

3 Choose the correct answer : *(5 marks)*

1. Carbon is ....
   a. a non-metal. b. shiny.
   c. a good conductor of heat. d. (a) and (c).
2. Matter exists in .... at the ordinary room temperature.
   a. one state b. two states c. three states d. four states
3. The distance between cities is measured in ....
   a. gram. b. kilogram. c. metre. d. kilometre.



4. ………… has a low melting point.
   a. Aluminium b. Sulphur c. Iron d. Copper
5. All of these matter are liquids except …………
   a. alcohol. b. kerosene. c. oxygen. d. mercury.

4 **[A] What happens when … ?** *(5 marks)*

1. Boiling water and exposing the product to a cold glass sheet.
……………………………………………………………………
……………………………………………………………………
2. You heat a piece of iron and some crystals of sulphur to high temperature.
……………………………………………………………………

[B] Cross out the odd word :

1. Nitrogen gas - Water - Oxygen gas - Water vapour. (……………)
2. L - ml - cm^2 - cm^3. (……………)
3. Aluminium - Silver - Lead - Phosphorus. (……………)

5 **[A] Put (✓) or (✗) :** *(5 marks)*

1. Solid and gaseous substances have definite volumes. ( )
2. Element is the simplest form of matter. ( )
3. Three kilometres = 300 metres. ( )
4. Gold and iron are used in making jewellery. ( )

[B] Look at the following figure, then answer the following questions :

A piece of coal

1. What is your observation ?
……………………………………………
2. What is your conclusion ?
……………………………………………





Unit 1 Lesson 4

Test yourself 9

25

Good Very Good Excellent

1 Complete the following sentences : *(5 marks)*

1. The change in the structure of matter is called .... change.
2. The reaction between iron and both oxygen and water is a .... change.
3. The evaporation process is considered a .... change.
4. Melting of wax is a .... change, while burning of a candle is a .... change.
5. Cutting a piece of paper is a .... change, while its burning is a .... change.
6. Dissolving sugar in water is a .... change, while iron rusting is a .... change.
7. Melting of ice in the two poles is .... change.

2 [A] Give reasons for : *(5 marks)*

1. Burning a piece of bread is a chemical change.

....

....

2. Melting of ice is considered a physical change.

....

[B] Correct the underlined words :

1. Malleability of copper metal is a **chemical change**. (................)
2. Fermentation of fruits occurs when fruits are exposed to air for a long time. This is a **physical change**. (................)
3. The **chemical change** is a change in the shape of matter only. (................)
4. When table salt dissolves in water, it disappears in water producing **a change in the structure** of table salt. (................)

3 Classify the following changes into physical or chemical changes. Giving the reasons : *(5 marks)*

Sugar fermentation - Burning of coal - Grinding of sugar - Iron rusting - Condensation of water vapour - Melting of wax - Changing of milk into yoghurt - Charring of bread.

- Physical changes are : ....

....

- The reason : ....

- Chemical changes are : ....

- The reason : ....

4 **Choose the correct answer :** *(5 marks)*

1. .... is an example of physical changes.
   a. Burning of sugar
   b. Burning of coal
   c. Melting of ice
   d. Burning of a candle
2. Iron rusts when it reacts with ....
   a. oxygen gas.
   b. water.
   c. carbon dioxide gas.
   d. (a) and (b).
3. Adding yeast in baking is considered ....
   a. a chemical change.
   b. a physical change.
   c. a biological change.
   d. no change.
4. Burning a piece of paper causes a change in its ....
   a. shape.
   b. structure.
   c. (a) and (b).
   d. no correct answer.
5. All the following are examples of chemical changes except ....
   a. burning of paper.
   b. rusting of iron.
   c. dissolving of sugar in water.
   d. fermentation of fruits.

5 **[A] Write the scientific term :** *(5 marks)*

1. The change in the appearance of matter without any change in its structure. (..........)
2. A change in the structure of the substance. (..........)

[B] Look at the following figure, then answer :

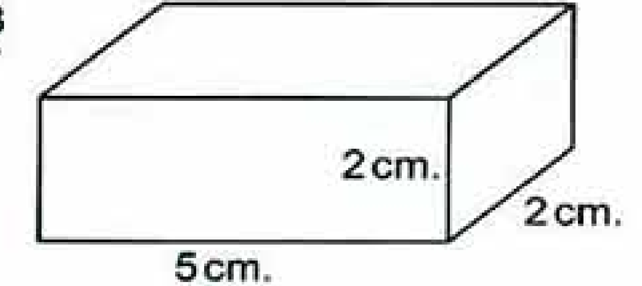
1. What will happen to the sugar cube ?
   ....
2. What is the type of change ? Give reason.
   ....

[C] What is meant by that the burning of wood is a chemical change ?

....

General Exercise of the School Book on Unit 1

1 Choose the correct answer :



1. The volume of the box shown in the figure = ... cm^3.
   a. 20 b. 25
   c. 30
2. When water boils, it changes from ....
   a. the solid state into the liquid one.
   b. the liquid state into the gaseous one.
   c. the gaseous state into the solid one.
3. On decreasing the temperature of water vapour, it ....
   a. freezes. b. condenses. c. melts.
4. Carbon is ....
   a. a good conductor of heat.
   b. a good conductor of electricity. c. malleable or ductile.
5. The foil paper that is used in wrapping up chocolate shows the ....
   a. electrical conductivity of metals.
   b. ability of metals for melting. c. malleability or ductility.
6. Which of the following is considered as a physical change ? ....
   a. Burning of fuel. b. Melting of a candle. c. Rusting of iron.
7. The change produced as a result of ductility of copper to form wires is the same change produced from ....
   a. making bread. b. melting of iron. c. burning of coal.
8. Which of the following is considered as a chemical change that happens to a piece of paper ? ....
   a. Bending it. b. Cutting it into pieces. c. Burning it.

2 Complete the following statements :

1. The change of ice into water is considered as a .... change.
2. Increasing the temperature of water to the boiling point changes water into ....

3. The continuity of decreasing water temperature changes it from the ………… state to the ………… state.
4. The substance that can't be decomposed into two substances or more is known as …………
5. Elements are classified into ………… and …………
6. The group of ………… has metallic luster, while the group of ………… doesn't have.
7. Graphite is a form of ………… element and it is a good conductor of …………
8. Ductility of copper into wires is considered as a ………… change, while iron rusting is considered as a ………… change.
9. Melting of wax is a ………… change, while burning of wax is a ………… change.
10. Burning of wood is considered as a ………… change.
11. Fuel of cars is ………… substance and its burning for the purpose of cars movement is considered as a ………… change.

3 What happens when... and give reasons?

1. Putting a bottle of water in the freezer.

……………………………………………………………………………………

……………………………………………………………………………………

2. Boiling water and exposing the water vapour to a cold surface.

……………………………………………………………………………………

……………………………………………………………………………………

3. Putting a piece of a wet iron wire in a jar filled with oxygen.

……………………………………………………………………………………

……………………………………………………………………………………

4. Increasing the temperature of ice.

……………………………………………………………………………………

……………………………………………………………………………………

5. Leaving a dish containing salty water in the sun rays for a period of time.

……………………………………………………………………………………

……………………………………………………………………………………

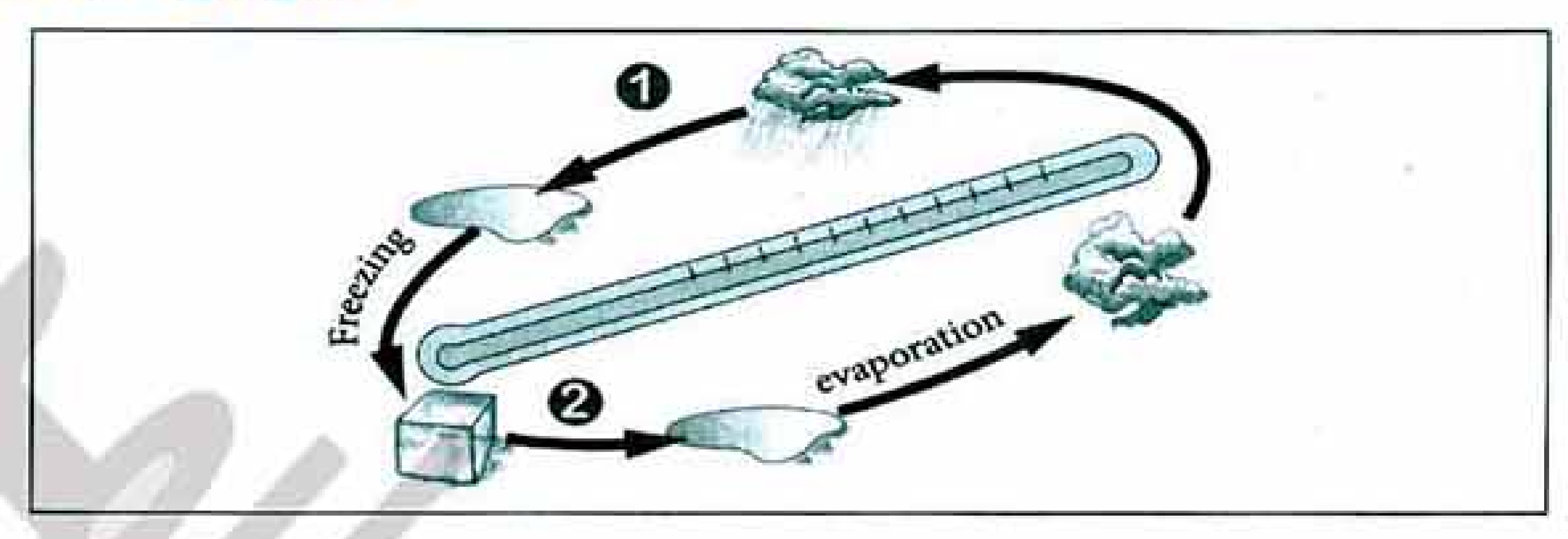
6. Putting a little amount of sugar in a beaker over a flame.

……………………………………………………………………………………

……………………………………………………………………………………



4 In the following figure :



1. Number (1) is the change of matter from the .... state to the .... one.
2. Number (2) is the change of matter from the .... state to the .... one.
3. Mention the type of change happening in this figure ?

....

....

5 Complete the following figure :



6 Tamer has left a piece of iron wire which is used in cleaning cooking pots in water and after a period of time, he recorded his observations.

1. What did Tamer observe ?

....

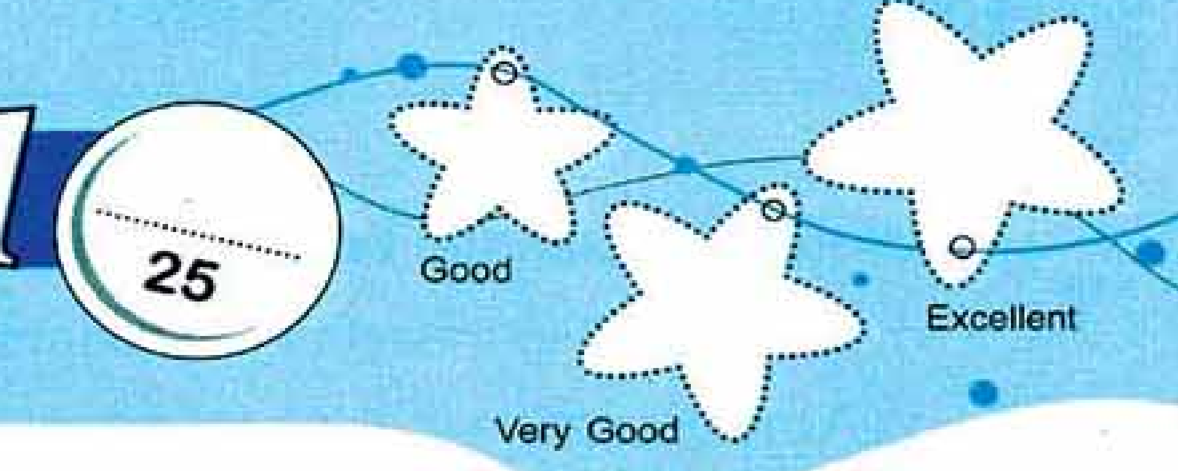
2. Mention the type of change happens.

....



Model Exam 1 on Unit 1

25



1 Complete the following sentences : *(5 marks)*

1. The mass can be measured in some units as ………… , ………… or …………
2. The change of water into ice is known as ………… process.
3. Iron is used in manufacturing of ………… , ………… and …………
4. Bending of iron is considered a ………… change, while iron rusting is considered a ………… change.
5. Appearance of some water droplets on cold surfaces such as leaves of plants in winter is an example of ……… process.

2 Give reasons for : *(5 marks)*

1. The book has a volume.

…………………………………………………………………………………………

2. Sugar is a solid matter, while mercury is a liquid matter.

…………………………………………………………………………………………

3. Gold and silver are used in making jewellery.

…………………………………………………………………………………………

4. A brown substance is produced after burning a piece of sugar.

…………………………………………………………………………………………

5. Water freezes when it is put in the freezer.

…………………………………………………………………………………………

3 [A] Put (✓) or (✗) : *(5 marks)*

1. 1 kilogram = 100 grams. ( )
2. Gaseous matter has definite shape and volume. ( )
3. The positive pole of the dry cell is made of a metallic element which is carbon. ( )
4. The change of paper into black ash is a chemical change. ( )



1 Part

[B] Write the scientific term :

1. A tool used to measure the volumes of liquids. (...............)
2. A metal used in making foil paper. (...............)
3. A change occurs during digestion of food. (...............)

4 Choose the correct answer : *(5 marks)*

1. If the dimensions of a mobile phone are 10, 6, 2 cm, so its volume equals .... cm^3.
   a. 50 b. 100 c. 120 d. 18
2. The volume of water increases on ....
   a. heating. b. freezing. c. evaporation. d. condensation.
3. A liquid non-metal is ....
   a. mercury. b. water. c. bromine. d. lead.
4. Adding sodium bicarbonate to vinegar is a ....
   a. physical change. b. chemical change. c. element. d. non-metal.
5. Metals have .... melting and boiling points.
   a. no b. low c. intermediate d. high

5 [A] What happens when...? *(5 marks)*

1. Boiling water for a long period of time.
   ....
   ....
2. A bright shiny iron nail is moistened and exposed to air.
   ....
   ....

[B] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Nitrogen.	a. Solid metal.
2. Cubic metre.	b. Non-metal gas.
3. Centimetre.	c. Is used to measure the volumes.
4. Copper.	d. Non-metal solid.
	e. Is used to measure the small lengths.

1. .... 2. .... 3. .... 4. ....



Model Exam 2 on Unit 1

25

Good
Very Good
Excellent

1 Complete the following sentences : *(5 marks)*

1. Copper is a .... and it is a .... conductor of heat.
2. Matter has .... and ....
3. The state of matter that takes the .... of the container and its volume doesn't change is the ....
4. Iron rusts when it is exposed to .... and ....
5. Elements are classified according to their properties into .... and ....

2 [A] Write one use for each of the following : *(5 marks)*

1. Sensitive balance :

....

2. Carbon :

....

3. Measuring ruler :

....

[B] Put (✓) or (✗) :

1. Equal volumes of different substances have equal masses. (   )
2. Matter exists in four states. (   )
3. Graphite is a non-metal which conducts heat and electricity. (   )
4. Melting process is opposite to freezing process. (   )

3 [A] Give reasons for : *(5 marks)*

1. Oxygen is a gaseous matter.

....

2. Melting of wax is a physical change.

....



1 Part

[B] Write the scientific term :

1. A metallic element that is used in making car frames. (...............)
2. A change of matter from gaseous state to liquid state by cooling. (...............)
3. A unit used to measure small masses. (...............)

4 Choose the correct answer : *(5 marks)*

1. .... is a change in the appearance of matter without any change in its structure.
   a. Physical change b. Chemical change c. Metal d. Matter
2. Three metres equal .... centimetres.
   a. 600 b. 300 c. 30 d. 3
3. Gold industries need .... processes.
   a. melting then cooling b. condensation then cooling
   c. evaporation then cooling d. cooling then melting
4. Statues are made up of ....
   a. iron. b. aluminium. c. sulphur. d. copper.
5. The increase in temperature (heating) is accompanied by .... process(es).
   a. freezing b. condensation
   c. evaporation d. (a) and (b) together

5 [A] Correct the underlined words : *(5 marks)*

1. Burning of a candle is a **physical change**. (...............)
2. Water freezes by **heating**. (...............)
3. **Graduated tape** is used to measure large masses. (...............)
4. **Sulphur** has metallic luster. (...............)

[B] A graduated cylinder is filled completely with water and 5 equal-sized marbles are put in it. Calculate the volume of each marble if the volume of the spilled water = 15 cm^3.

....

....



Unit 2 Lesson 1

Test yourself 10

25

Good
Very Good
Excellent

1 Complete the following sentences : *(5 marks)*

1. Planets are ………… bodies that revolve around the Sun in fixed …………
2. The Sun is ………… sized star that lies at the center of the …………
3. The Earth locates between ………… and …………
4. The nearest planet to the Sun is ………… , while the farthest one is …………
5. The number of planets in the solar system is …………

2 [A] Give reasons for : *(5 marks)*

1. The Sun appears as the biggest star.

…………………………………………………………………………

2. Moon is a dark object, but we see it shiny.

…………………………………………………………………………

3. The Earth is a planet.

…………………………………………………………………………

[B] Arrange the following planets from the nearest to the farthest from the Sun :

Jupiter - Earth - Mars - Mercury - Uranus - Neptune - Saturn - Venus.

…………………………………………………………………………

3 Put (✓) or (✗) and correct the wrong one : *(5 marks)*

1. The solar system consists of the Sun and the eight planets only. ( )

…………………………………………………………………………

2. The Earth is a planet, while Venus is a star. ( )

…………………………………………………………………………

3. Jupiter is the farthest planet. ( )

…………………………………………………………………………

4. Mars is the most beautiful planet. ( )

....

5. The largest planet in the solar system is Uranus. ( )

....

4 Choose the correct answer : *(5 marks)*

1. The biggest two planets are ....
   a. Jupiter and Mars.
   b. Saturn and Venus.
   c. Neptune and Earth.
   d. Jupiter and Saturn.
2. The solar system consists of ....
   a. the Sun and the eight planets.
   b. moons.
   c. asteroids, meteors, meteorites and comets.
   d. (a) , (b) and (c).
3. Saturn is characterized by ....
   a. red soil.
   b. black rings.
   c. coloured rings.
   d. blue sky.
4. .... is the red planet.
   a. Mars
   b. Uranus
   c. Neptune
   d. Jupiter
5. The biggest planet in the solar system is ....
   a. Earth.
   b. Jupiter.
   c. Mercury.
   d. Neptune.

5 [A] Write the scientific term : *(5 marks)*

1. Dark bodies revolve around the Sun in fixed orbits. (...............)
2. It is a shining star and it is the nearest star to us. (...............)
3. The nearest planet to the Sun. (...............)

[B] Match :

(A)	(B)
1. Mercury.	a. The blue planet.
2. Venus.	b. The nearest planet to the Sun.
3. Neptune.	c. Is called the red planet.
4. Mars.	d. The most beautiful planet.

1. .... 2. .... 3. .... 4. ....



Unit 2 Lesson 1

Test yourself 11

25

Good
Very Good
Excellent

1 Complete the following sentences : *(5 marks)*

1. Planets revolve around the ...., while .... revolve around the planets.
2. Mars is known as ...., while Neptune is the ....
3. Saturn is the .... planet away from the Sun and it is characterized by having ....
4. The cold planet is .... and it is the .... planet away from the Sun.
5. The Sun is a ...., while the Earth is a ....

2 [A] Give reasons for : *(5 marks)*

1. The moon is a dark body, but it looks shiny at night.

   ....

2. The Sun is a star, while the Earth is a planet.

   ....

   ....

   ....

3. Stars seem very small in size.

   ....

[B] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The number of planets is	a. Mars.
2. The nearest planet to the Earth is	b. Neptune.
3. The blue planet is	c. Saturn.
4. The cold planet is	d. Uranus.
	e. eight.

1. .... 2. .... 3. .... 4. ....

1 Part

3 **Put (✓) or (✗) and correct the wrong one :** *(5 marks)*

1. The moon is a planet that revolves around the Sun. ( )
....
2. Uranus is the biggest planet in the solar system. ( )
....
3. Mars is called the blue planet. ( )
....
4. There are five planets only revolving around the Sun. ( )
....
5. Neptune is the farthest planet from the Sun. ( )
....

4 **Write the scientific term :** *(5 marks)*

1. The planet that is characterized by the presence of coloured rings around it. (...............)
2. A planet that is called the red planet. (...............)
3. The nearest space body to the Earth. (...............)
4. It consists of the Sun, eight planets, moons and some other space bodies. (...............)
5. The biggest body in the solar system. (...............)

5 **[A] Correct the underlined words :** *(5 marks)*

1. The biggest planet in the solar system is <u>Saturn</u>. (...............)
2. Neptune is called the <u>red</u> planet. (...............)

[B] Look at the opposite figure, then complete the following sentences using the words in the following list :

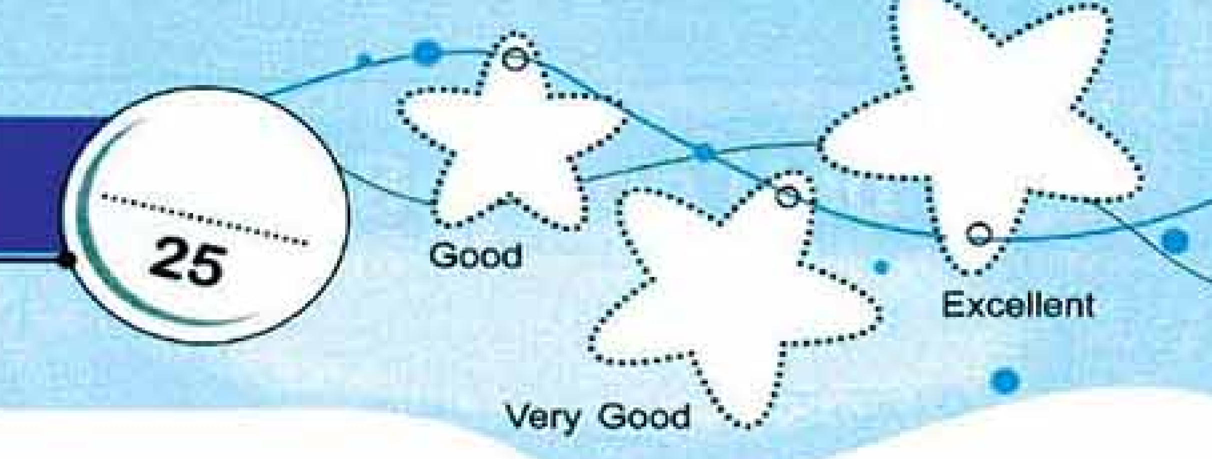
List : (Earth – Sun – Moon)

1. Number (1) represents the ....
2. Number (2) represents the ....
3. Number (3) represents the ....

(1) (2) (3)

Unit 2 Lesson 2

Test yourself 12



1 Complete the following : *(5 marks)*

1. Number of hours of day and night are nearly equal during ………… and ………… seasons.
2. The Earth rotates around its axis once every ………… , while it revolves around the Sun once every …………
3. The Earth's axis is inclined and this causes the difference in the length of ………… and …………
4. Day is longer than night in ………… and shorter than night in …………
5. Sequence of four seasons results from the revolution of ………… around …………

2 [A] What happens if...? *(5 marks)*

1. The Earth's axis is vertical and not inclined.
……………………………………………………………………………………
2. The Earth rotates around itself.
……………………………………………………………………………………
3. The Earth revolves around the Sun once every 365 and quarter a day.
……………………………………………………………………………………

[B] Put (✓) or (✗) :

1. Shadow is resulted from the apparent movement of the Sun. ( )
2. The Earth revolves around the Sun once every 24 hours. ( )
3. The day in summer season is longer than the night. ( )
4. The axis of the Earth is vertical. ( )

3 Choose the correct answer : *(5 marks)*

1. During ……… season of the northern hemisphere, the northern hemisphere is inclined towards the Sun.
   a. summer b. winter c. autumn d. spring
2. The Earth revolves around the Sun once every ………
   a. 24 hours. b. $365\frac{1}{4}$ hours. c. day. d. $365\frac{1}{4}$ days.
3. During winter of the northern hemisphere, there is ……… in the southern hemisphere.
   a. summer b. winter c. autumn d. spring

4. The number of day hours is equal to the number of night hours in ....
   a. summer. b. winter.
   c. spring. d. winter and spring.
5. The sequence of four seasons is resulted from the revolution of the ....
   a. Earth around its axis. b. moon around the Earth.
   c. Earth around the Sun. d. Sun around itself.

4 **[A] Give reasons for :** *(5 marks)*

1. The movement of the shadow of a fixed object exposed to the Sun.

   ....

2. The sequence of day and night.

   ....

3. Day in summer season is longer than day in winter season.

   ....

[B] What is the type of the phenomenon that resulted from :

1. Rotation of the Earth around its axis.

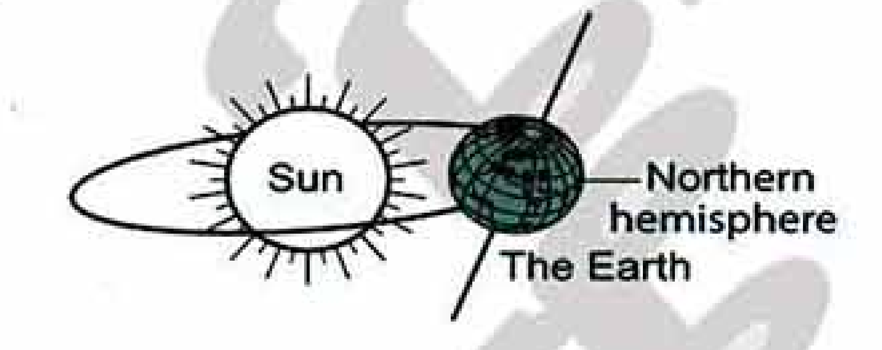
   ....

2. Revolution of the Earth around the Sun.

   ....

5 **[A] Look at the following figure, then complete the following sentences :** *(5 marks)*

1. There is .... season in the southern hemisphere, so number of hours of .... is more than that of ....
2. There is .... season in the northern hemisphere, so the number of hours of .... is more than that of ....



[B] Compare between the movement of Earth around its axis and around the Sun :

....

....

....

General Exercise of the School Book on Unit 2

1 **Choose the correct answer from words between brackets :**

1. Stars are .... (shining – dark) bodies with .... (equal – different) sizes, while the planets are .... (shining – dark) bodies.
2. The number of the planets in the solar system is .... (6 – 8) planets that revolve around .... (the moon – the Sun) in definite orbits.
3. The nearest planet to the Sun is .... (Jupiter – Mercury) and the farthest planet is .... (Uranus – Neptune), while the biggest planet is .... (Jupiter – Venus).
4. Day and night happen because of the rotation of the .... (Sun – Earth) around its axis, while the seasons of the year happen because of the revolution of the .... (Earth – moon) around the Sun.

2 **Write the scientific term :**

1. Dark objects revolve around the Sun in fixed orbits. (..............)
2. Dark object revolves around the Earth and reflects the sun rays falling on its surface. (..............)

3 **What is the type of the phenomenon resulted from :**

1. Rotation of the Earth around its axis.

....

2. Revolution of the Earth around the Sun.

....

4 **Compare between :**

A star and a planet.

....
....
....
....



Model Exam 1 on Unit 2

25

Good
Very Good
Excellent

1 Complete the following sentences : (5 marks)

1. ………… is the biggest body in the solar system, while ………… is the smallest planet.
2. Stars are shining bodies that emit ………… and …………
3. The sequence of ………… occurs due to the revolution of ………… around the Sun.
4. When the northern hemisphere is near to the Sun, the season in Egypt is …………
5. The farthest planets from the Sun are ………… , ………… and …………

2 [A] Write the scientific term : (5 marks)

1. The phenomenon that occurs when the Earth rotates around its axis. (……………)
2. The third planet away from the Sun. (……………)
3. A planet that its rocks contain iron. (……………)

[B] Give reasons for :

1. Although the moon lights at the sky, we don't consider it as a star.

……………………………………………………………………………………

2. The movement of shadow at different times of day.

……………………………………………………………………………………

3 Choose the correct answer : (5 marks)

1. The number of ………… in the solar system is eight.
   a. stars b. moons c. planets d. (a) and (b)
2. In winter season the night hours are ………… the day hours.
   a. longer than b. shorter than c. equal to d. no correct answer
3. The most beautiful planet is …………
   a. Earth. b. Mars. c. Uranus. d. Venus.
4. The Earth's axis is …………
   a. vertical. b. inclined. c. horizontal. d. all the previous answers.
5. Neptune is …………
   a. the smallest planet. b. the blue planet.
   c. the farthest planet from the Sun. d. (b) and (c).

4 Put (✓) or (✗) and correct the wrong one : *(5 marks)*

1. The Earth rotates around its axis once every 24 days. ( )

....

2. The sequence of day and night is due to revolution of the Earth around the Sun. ( )

....

3. The nearest planet to the Sun is Venus. ( )

....

4. The moon is a dark body that reflects the sunlight. ( )

....

5. The day equals the night in spring and fall. ( )

....

5 [A] Compare between the Sun and the moon : *(5 marks)*

....

....

....

....

[B] Arrange the planets according to their sizes (begin with the smallest) :

1. Neptune - Mars - Earth - Mercury.

....

2. Venus - Earth - Uranus - Jupiter.

....



Model Exam 2 on Unit 2

25

Good
Very Good
Excellent

1 Complete the following sentences : *(5 marks)*

1. ………… locates at the center of the solar system and there are ………… that revolve around it in definite orbits.
2. The Earth lies between ………… planet and ………… planet.
3. Day and night are nearly equal only during ………… and ………… seasons.
4. The day in the ………… season is longer than the day in ………… season.
5. The phenomenon of sequence of ………… results from the rotation of the Earth around its axis, while the phenomenon of ………… sequence results from the revolution of the Earth around the Sun.

2 Give reasons for : *(5 marks)*

1. The Sun is a star, while the Earth is a planet.
…………………………………………………………………………
…………………………………………………………………………
2. Planets and moon have some similar characteristics.
…………………………………………………………………………
3. Sequence of four seasons.
…………………………………………………………………………
4. The apparent movement of the Sun.
…………………………………………………………………………
5. Mars is known as the red planet.
…………………………………………………………………………

3 [A] Put (✓) or (✗) : *(5 marks)*

1. The Sun is a planet and it emits light. ( )
2. Neptune is the most beautiful planet, but Uranus is the red planet. ( )
3. The biggest planet in the solar system is Uranus. ( )
4. In winter and summer seasons, the day hours are equal to the night hours. ( )
5. The Sun doesn't revolve around the Earth. ( )

[B] Arrange the planets according to their distance from the Sun (from the nearest to the farthest) :
(Saturn - Neptune - Venus - Earth - Mercury - Mars - Jupiter - Uranus).

....

....

4 [A] What happens when...? *(5 marks)*

1. The Earth rotates around its axis.

....

2. The Sun faces a part of the Earth.

....

[B] Write the scientific term :

1. The planet that is characterized by coloured rings around it. (...............)
2. A season in which day is shorter than night. (...............)
3. Dark bodies revolve around the planets and reflect the sunlight falling on them. (...............)

5 Choose the correct answer : *(5 marks)*

1. The central body of the solar system is ....
   a. the Earth. b. the Sun. c. the moon. d. Mars.
2. The farthest planet from the Sun is ....
   a. Mercury. b. Neptune. c. Jupiter. d. Mars.
3. The number of day hours is equal to the number of night hours in ....
   a. summer. b. winter.
   c. spring. d. all of the seasons.
4. The number of planets in the solar system is ....
   a. four. b. six. c. eight. d. nine.
5. The closest two planets to Uranus are ....
   a. Saturn and Neptune. b. Saturn and Earth.
   c. Neptune and Jupiter. d. Mars and Mercury.

Final Exams

PART TWO

30 Final Exams of some Schools Governorates.

* Some exams questions have been modified according to the ministry modifications for the first term 2017-2018



1 Cairo Governorate

New Cairo Zone
Manor House International School

Answer the following questions :

1 Complete the following statements :

1. .... is the amount of matter that the object contains.
2. Cubic metre is the measuring unit of ....
3. Liquids have .... volumes and don't have definite ....
4. Condensation is the change of matter from the .... state to the .... state.
5. All non-metals are .... conductors of electricity except ....
6. Metals are solid at room temperature except .... that is a ....
7. Melting of wax is considered a .... change, while burning of a candle is .... change.
8. The Sun is a .... , while the Earth is a ....
9. The movement of shadow is due to the rotation of .... around ....

2 [A] Give reasons for :

1. The Sun is a star but the Earth is a planet.
....
....
2. Melting of ice is a physical change.
....
3. Fermentation of milk is a chemical change.
....
....
4. Electric wires are made of copper and aluminium.
....

[B] Write the scientific term :

1. It is formed when Earth rotates around its axis. (........................)
2. A change of matter from the solid state to the liquid state by heating. (........................)
3. A self-shining body that emits heat and light. (........................)

2
Part

3 [A] Choose the correct answer :

1. The part of the Earth that faces the Sun ....
   a. doesn't get light.
   b. is darker than other side.
   c. is at daytime.
   d. is at night.
2. The biggest two planets are ....
   a. Neptune and Earth.
   b. Jupiter and Saturn.
   c. Saturn and Venus.
   d. Jupiter and Mars.
3. .... are similar in having indefinite shapes.
   a. Solids and liquids
   b. Solids and gases
   c. Liquids, solids and gases
   d. Liquids and gases
4. Matter changes from one state to another by ....
   a. heating only.
   b. cooling only.
   c. stirring.
   d. heating or cooling.
5. .... is a bad heat conductor.
   a. Bromine   b. Aluminium   c. Iron   d. Copper

[B] What's meant by ... ?

1. A physical change : ....
....
2. Melting process : ....
....
3. Stars : ....
....

4 [A] Put (✓) or (✗) and correct the wrong ones:

1. Sensitive balance is used to measure the mass of small objects. (   )
....
2. Liquids are evaporated by cooling. (   )
....
3. Metals exist in solid, liquid and gaseous states. (   )
....
4. Jupiter is the red planet. (   )
....

[B] Classify the following materials in the following table into solids , liquids and gases.

(Oil - Table salt - Sugar - Kerosene - Benzene - Air - Water - Iron pieces - Oxygen - Ice - Water vapour - Bromine)

Solids	Liquids	Gases
....	....	....
....	....	....
....	....	....
....	....	....

[C] A mobile phone has a length of 6 cm , its width is half its length and its height is 2 cm. Calculate its volume.

....

....

2 Cairo Governorate

Nasr East Directorate
Manaret Heliopolis School

Answer the following questions :

1 Complete the following statements :

1. Matter has .... and ....
2. Common balance is used to measure ...., while measuring tape is used to measure ....
3. States of matter are solid, ... and ....
4. The Earth revolves around the Sun once every ...., while it rotates around its axis once every ....
5. Burning of paper is considered a .... change, while melting of ice is considered a .... change.
6. Carbon and .... are non-metals, while iron and .... are metals.
7. The nearest planet to the Sun is ...., while the farthest planet is ....
8. Mars is known as ...., while Neptune is known as .... planet.

2 Choose the correct answer :

1. We can determine the volume of an irregular small stone that doesn't dissolve in water by using ....
   a. common balance.
   b. graduated cylinder.
   c. ruler.
   d. graduated tape.



2 Part

2. The Earth's axis is ....
 a. vertical. b. horizontal. c. inclined. d. no correct answer.
3. Oxygen is an example for .... state.
 a. gaseous b. liquid c. solid d. no correct answer
4. The central body of the solar system is the ....
 a. Earth. b. Sun. c. moon. d. Jupiter.
5. Cooking pots are made up of ....
 a. sulphur. b. aluminium. c. wood. d. carbon.
6. The number of the planets in the solar system is ....
 a. 4 b. 6 c. 8 d. 3
7. Changing of the matter from liquid state to gaseous state is ....
 a. solidification. b. condensation. c. evaporation. d. melting.
8. A stone is put in a jar containing 30 cm^3 of water, water level raises in the jar up to 50 cm^3, so the volume of the stone equals ....
 a. 20 cm^3. b. 10 cm. c. 100 cm^2. d. 1 cm.

3 Write the scientific term :

1. Dark objects revolve around the Sun in fixed orbits. (..............)
2. The change that occurs in the appearance of the matter without any change in its structure. (..............)
3. The space that is occupied by matter. (..............)
4. A change of matter from liquid state to solid state by cooling. (..............)
5. Shining objects radiate light and heat and appear in the sky at night. (..............)
6. The simplest form of matter that cannot be analyzed into two or more substances. (..............)
7. A state of matter that has a definite volume and shape. (..............)
8. They are the followers of some planets that revolve around them. (..............)

4 [A] Put (✓) or (✗) :

1. The day in summer season is longer than the night. ( )
2. The moon is a self-shining star radiates light and heat. ( )
3. Iron is used in manufacturing of bridges. ( )



4. The Earth is located between Mars and Venus. ( )
5. Mercury is a liquid non-metal. ( )
6. Sequence of the four seasons is due to the revolution of the Earth around the Sun. ( )

[B] Give reasons for :

1. Water is a liquid matter.

....

2. The stars seem very small in size.

....

3 Cairo Governorate

Shoubra Directorate
Good Shepherd Sister's Language School-Al.Attar

Answer the following questions :

1 Complete the following sentences :

1. Kilogram is the measuring unit of ....
2. Melting of wax is a .... change, while burning of paper is a .... change.
3. The nearest two planets to the Earth are .... and ....
4. The Earth revolves around the Sun every .... days.
5. Water changes into .... by cooling.
6. .... is the substance that can't be decomposed into two substances or more.

2 [A] Choose the correct answer :

1. The electric wires are made up of ....
   a. copper. b. carbon. c. wood.
2. The volume of a solid material is measured in ....
   a. cm. b. cm^2. c. cm^3.
3. .... is an example of non-metals.
   a. Iron b. Carbon c. Copper
4. The cold planet in the solar system is ....
   a. Uranus. b. Saturn. c. Mars.
5. The only liquid non-metal is ....
   a. mercury. b. iron. c. bromine.
6. The number of the day hours is equal to the number of the night hours in ....
   a. summer. b. winter. c. spring.



2 Part

[B] Find the volume of a brick that its length is 5 cm, its width is 3 cm and its height is 1 cm.

....

....

3 [A] Write the scientific term :

1. Shining bodies that emit light. (....................)
2. The change of matter from liquid state to gaseous state by heating. (....................)
3. It is called the red planet in the solar system. (....................)
4. Formation of brittle layer on the iron surface when it is exposed to wet air. (....................)
5. The amount of matter that the object contains. (....................)

[B] Give reasons for :

1. A car is a matter.

....

2. The stars seem very small in size.

....

3. The sequence of day and night.

....

4 [A] Correct the underlined words in each of the following :

1. The Sun is a **planet** and it emits light. (....................)
2. Matter exsists in **four** states. (....................)
3. **Neptune** is called the most beautiful planet. (....................)
4. Non-metals have **high** melting point. (....................)
5. **Liquids** have indefinite shapes and indefinite volumes. (....................)
6. The measuring cylinder is used in measuring the **mass**. (....................)

[B] Arrange the following planets according to the distance from the Sun (from the nearest to the farthest) :

(Uranus - Neptune - Jupiter - Venus)

....



4 Cairo Governorate

El-Zietoun Educational Zone
Gomhouria Language School

Answer the following questions :

1 [A] Complete the following sentences :

1. Kilogram is the measuring unit of ……………, while metre is the measuring unit of ……………
2. Silver is a shiny element, so it belongs to the …………… group, while sulphur is an element doesn't have metallic luster so, it belongs to …………… group.
3. The nearest planet to the Sun is ……………, while the farthest planet is ……………
4. In …………… and …………… seasons the day equals the night.

[B] A box has length 4 cm, its width 3 cm and its height is 2 cm. Claculate its volume.

The volume = …………… × …………… × ……………

= …………… × …………… × …………… = ……………

[C] Which of the following is a physical change and which is a chemical change ?

1. Rusting of iron.

……………………………………………………………

2. Dissolving of sugar in water.

……………………………………………………………

2 [A] Write the scientific term of each of the following :

1. Dark objects revolve around the Sun. (……………)
2. A season in which day is shorter than night. (……………)
3. Everything that has mass and volume. (……………)
4. It is the change of matter from liquid state to gaseous state by heating. (……………)

[B] What is the use (or importance) of ... ?

1. Graduated cylinder.

……………………………………………………………

2. Common balance.

……………………………………………………………

3. Iron.

……………………………………………………………

4. Graduated tape.

……………………………………………………………

2 Part

3 [A] Give reasons for :

1. Carbon is used in the manufacturing of poles of dry cells.

....

2. The moon is a dark body but we see it shiny.

....

3. Sequence of the four seasons.

....

4. Air is a matter.

....

[B] What happens when ... ?

1. You leave a glass filled with ice in air for few minutes.

....

2. The Earth rotates around its axis.

....

[C] What is meant by ... ?

1. Freezing.

....

2. Mass.

....

4 [A] Choose the correct answer :

1. The central body of the solar system is the ....
   a. Earth. b. Sun. c. moon.
2. The Earth's axis is ....
   a. vertical. b. horizontal. c. inclined.
3. The change of matter from solid state to liquid state is ....
   a. melting. b. condensation. c. evaporation.
4. All of these matter have definite volumes and definite shapes except ....
   a. alcohol. b. iron. c. stone.
5. The only metal that exists in the liquid state is ....
   a. mercury. b. oxygen. c. bromine.
6. The most beautiful planet in shape in the solar system is ....
   a. Earth. b. Saturn. c. Venus.

[B] Correct the underlined words :

1. Matter exists in **four** states. (....................)
2. **Neptune planet** is called the red planet. (....................)
3. **Solids** are changing their shapes and volumes according to their container. (....................)
4. The graduated ruler used to measure the **mass**. (....................)

5 Cairo Governorate

Western Nasr City Educational Zone
El-Malek Fahad Language School

Answer the following questions :

1 [A] Complete the following sentences :

1. Litre is the measuring unit of ....
2. .... is a non-metal element that is good conductor of electricity.
3. The Earth revolves around the .... once every 365 and quarter a day.
4. Matter can be pressed inside cylinders in its .... state.
5. .... is the red planet.

[B] Give reasons for :

1. Aluminium is used to make cooking pans.
....
2. Water is a matter.
....
3. Sequence of day and night.
....

2 [A] Put (✓) or (✗) :

1. In evaporation process, liquid state changes to gaseous state. (   )
2. Melting of ice is considered a chemical change. (   )
3. The axis of the Earth is inclined. (   )
4. Wood and glass are solid matter. (   )
5. The Sun is the biggest star in the universe. (   )

[B] Cross out the odd word :

1. Gold – Sulphur – Copper – Iron. (....................)



2 Part

2. Kilogram – Kilometre – Metre – Centimetre. (........................)

3. Water – Milk – Carbon dioxide – Oil. (........................)

3 [A] Write the scientific term :

1. The process in which solid state changes to liquid state. (........................)
2. Liquid non-metal. (........................)
3. The amount of matter in an object. (........................)
4. The biggest planet in the solar system. (........................)
5. State of matter has definite volume, but indefinite shape. (........................)

[B] Correct the underlined words :

1. The Earth revolves around the **moon** causing four seasons. (........................)
2. **Copper** is used in making bridges. (........................)
3. Common balance is used in measuring the **length**. (........................)

4 [A] Choose the correct answer :

1. The day is equal to night in ....
   a. autumn. b. summer. c. winter.
2. The farthest planet from the Sun is ....
   a. Venus. b. Mars. c. Neptune.
3. Water vapour changes into water in .... process.
   a. condensation b. melting c. evaporation
4. .... of sugar is considered a chemical change.
   a. Burning b. Dissolving c. Grinding
5. The number of planets in the solar system is ....
   a. six. b. nine. c. eight.
6. There is life on the .... planet.
   a. Mercury b. Earth c. Jupiter

[B] Calculate the volume of this box which has width (3 cm) length (5 cm) and height (1 cm).

1cm. 3cm. 5cm.

The volume = ...

....

6 Cairo Governorate
Maadi Educational Directorate
Science Inspectorate

Answer the following questions :

1 Complete the following sentences :

1. The measuring units of length are .... and ....
2. Grinding of sugar is considered a .... change , while burning of sugar is considered a .... change.
3. The liquid metal is ...., while the liquid non-metal is ....
4. Both .... and .... have definite volumes.

2 [A] Choose the correct answer :

1. The graduated cylinder is used to measure the .... of matter.
   a. mass b. length c. volume
2. .... has low melting point.
   a. Aluminium b. Silver c. Sulphur
3. There are .... planets in the solar system.
   a. six b. seven c. eight
4. The Earth revolves around the Sun once every .... days.
   a. $365\frac{1}{4}$ b. $365\frac{1}{3}$ c. $365\frac{1}{2}$

[B] What is meant by ... ?

1. Mass :
....
2. Melting :
....

3 [A] Write the scientific term :

1. A unit used to measure the small masses. (....................)
2. The change in the appearance of matter without change in its structure. (....................)
3. Dark bodies that revolve around the Sun in fixed orbits. (....................)
4. Anything that has a mass and occupies a space. (....................)



[B] Give reason for :

1. The sequence of day and night.

....

2. Carbon is used in the manufacturing of positive pole of dry cell.

....

4 [A] Put (✓) in front of the right sentence and (✗) in front of the wrong sentence :

1. Solids have definite shapes and definite volumes. (   )
2. The summer day is shorter than the winter day. (   )
3. Matter exists in four states. (   )
4. The Sun is a shining star that radiates heat and light. (   )

[B] Choose from column (B) what suits it from column (A) :

(A)	(B)
1. Mars	a. is the biggest planet.
2. Jupiter	b. is the nearest planet to the Sun.
3. Venus	c. is the red planet.
4. Mercury	d. is the cold planet.
	e. is the most beautiful planet.

1. .... 2. .... 3. .... 4. ....

7 Giza Governorate

6 October Directorate
Smart Vision School

Answer the following questions :

1 Choose the correct answer :

1. The Earth rotates around its axis once every ....
   a. 24 hours. b. year. c. 365 hours.
2. The biggest planet is ....
   a. the Earth. b. Mercury. c. Jupiter.
3. 5 metres = ... cm.
   a. 50 b. 500 c. 5000
4. Common balance is used for measuring ....
   a. mass. b. length. c. volume.

5. .... is used in making jewels.
   a. Carbon b. Iron c. Gold
6. The .... matter has definite shape and definite volume.
   a. solid b. liquid c. gaseous
7. .... is an example of a physical change.
   a. Burning of wood b. Iron rust c. Melting of wax
8. The Earth's axis is ....
   a. vertical. b. inclined. c. horizontal.

2 **[A] Give reason for :**

1. Stars seem small.
   ....
2. Sequence of the four seasons.
   ....
3. Batteries are made of carbon.
   ....

[B] Put (✓) or (✗) :

1. Mercury is a liquid metal. ( )
2. Fruits and vegetables masses are measured by sensitive balance. ( )
3. Mars is the blue planet. ( )
4. The day is longer than night in winter. ( )
5. Non-metals are malleable. ( )

3 **[A] Write the scientific terms :**

1. The space occupied by the matter. (..................)
2. The simplest form of matter that can't be decomposed into two or more substances. (..................)
3. The change in the shape and structure of matter. (..................)
4. The change of matter from solid to liquid. (..................)
5. The central biggest body in the solar system. (..................)

[B] Cross out the odd word :

1. Saturn – Venus – Sun – Earth. (..................)
2. Ruler – Pen – Cylinder – Common balance. (..................)
3. Iron – Sulphur – Copper – Aluminium. (..................)



4 [A] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Moon	a. chemical change.
2. Neptune	b. the planet where we live.
3. Iron	c. the farthest planet.
4. Rusting of iron	d. reflects sunlight.
5. 24 hours	e. used in making bridges.
	f. equal 1 day.

1. .... 2. .... 3. .... 4. .... 5. ....

[B] Compare between metals and non-metals :

Points of comparison	Metals	Non-metals
1. Heat conduction :	....	....
2. Melting point :	....	....
3. Examples :	....	....

8 Giza Governorate

Omrania Zone
Moharram Islamic Language School

Answer the following questions :

1 [A] Write the scientific term :

1. The change of matter from gaseous state into liquid state by cooling. (...............)
2. The nearest star to us. (...............)
3. The space occupied by the matter. (...............)
4. A change in the structure giving new substances with new properties. (...............)

[B] Classify the following :

Burning of paper – Grinding of sugar – Rusting of iron – Melting of ice.

Physical changes	Chemical changes
....	....
....	....

2 [A] Choose the correct answer :

1. Liquid metal is ....
   a. carbon. b. bromine. c. mercury. d. aluminium.
2. The daytime is shorter than night in .... season.
   a. summer b. spring c. autumn d. winter
3. Volumes of liquids can be measured by ....
   a. sensitive balance. b. graduated cylinder.
   c. graduated tape. d. common balance.
4. The planet which has coloured rings around it is ....
   a. Neptune. b. Saturn. c. Earth. d. Mars.

[B] Cross out the odd word :

1. Jupiter – Saturn – Sun – Neptune. (........................)
2. Kilogram – Ton – Gram – Metre. (........................)
3. Sulphur – Copper – Aluminium – Iron. (........................)
4. Oxygen – Wood – Nitrogen – Carbon dioxide. (........................)

3 Complete the following :

1. By cooling, water changes from .... state to .... state.
2. Two metres equal .... cm, while two kilograms equal .... grams.
3. Bridges are made of ...., while electric wires are made of ....
4. The red planet is .... and the cold planet is ....

4 [A] Put (✓) or (✗) :

1. Water vapour condenses when it touches a cold surface. ( )
2. Matter can be pressed in case of its gaseous state. ( )
3. Common balance is used to measure the mass of jewellery. ( )
4. The Earth rotates around its axis once every 24 hours. ( )
5. Gases have definite shapes and volumes. ( )

[B] Give reason for :

1. Sequence of the four seasons.
   ....
2. Cooking pots are made of aluminium.
   ....
3. The moon seems shiny.
   ....



9 Giza Governorate

Boulak El Dakrour Directorate
Dar El-Hanan Language School

Answer the following questions :

1 [A] Complete the following statements by using the following words :

(chemical – metals – physical – non-metals)

1. Sliver is a shiny element, so it belongs to the .... group, while sulphur doesn't have metallic luster so it belongs to .... group.
2. Dissolving sugar in water is a .... change , while iron rust is a .... change.

[B] Match :

(A)	(B)
1. Mercury	a. The biggest planet.
2. Jupiter	b. First planet to the Sun.
3. Mars	c. The farthest planet from the Sun.
4. Neptune	d. Is called the red planet.

1. .... 2. .... 3. .... 4. ....

2 [A] Correct the underlined words :

1. **Solids** are changing their shapes and volumes according to the container. (....................)
2. The graduated ruler is used to measure the **mass**. (....................)
3. In **winter and summer** seasons , the day hours are equal to the night hours. (....................)
4. **Hammering** of iron is a chemical change. (....................)

[B] Give reasons for :

1. Using copper in manufacturing of electric wires.

....

2. The sequence of the four seasons.

....



3 **[A] Give one difference between :**

Dissolving of sugar	Burning of sugar
....	....
The Sun	**Mars**
....	....

[B] Arrange the following planets according to the nearest to the Sun :

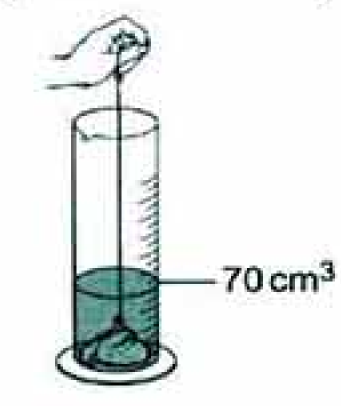
(Neptune – Venus – Uranus – Mars – Earth – Saturn)

....

4 **[A] Write the scientific term :**

1. Dark body revolves around the Sun and we live on it. (..................)
2. Everything that has a mass and a volume. (..................)
3. A tool that is used in measuring of small masses. (..................)
4. The center of the solar system. (..................)

[B] Your classmate placed a marble into a graduated cylinder of 50 cm^3 of water , the water raised up to 70 cm^3. What is the volume of the marble ?



The volume of the marble = ...

....

10 Giza Governorate

Experimental Directorate
Official Language Schools

Answer the following questions :

1 **Complete the following statements by using these words :**

(inclined – physical – Mass – Neptune – solid – Mercury – Mars – liquid)

1. .... is the red planet.
2. Matter exists in three states which are .... state, ... state and gaseous state.
3. The nearest planet to the Sun is ...., while .... is the farthest planet from the Sun.
4. .... is the amount of matter in the body.
5. The axis of the Earth is ....
6. Grinding of sugar is a .... change.



2 Part

2 [A] Write the scientific term :

1. Elements that have no luster. (....................)
2. Dark bodies that revolve around the planets. (....................)
3. A tool used to measure the mass of vegetables. (....................)
4. Non-metal element that is a good conductor of electricity. (....................)
5. Everything occupies a space and has a mass. (....................)
6. It is the simplest form of matter that cannot be decomposed. (....................)

[B] Give reason for :

1. Cooking pots are made of aluminium.

....

2. Sequence of the four seasons.

....

3 [A] Choose from column (B) what suitable for column (A) :

(A)	(B)
1. Iron	a. Changing from liquid to gas.
2. Evaporation	b. Rusting of iron.
3. Chemical change	c. Changing from liquid to solid.
4. Freezing	d. Used in making doors.

1. .... 2. .... 3. .... 4. ....

[B] Put (✓) or (✗) :

1. The biggest planet in the solar system is Uranus. ( )
2. The measuring unit of the volume is cm^2. ( )
3. The day in summer season is longer than night. ( )
4. Metals are bad conductors of heat and electricity. ( )

4 [A] Choose the correct answer :

1. The planet that we live on it is ....
   a. Mars. b. Jupiter. c. Earth.
2. Kilogram is the measuring unit of ....
   a. volume. b. mass. c. length.
3. .... is a liquid metal.
   a. Bromine b. Water c. Mercury

4. .... is from physical changes.
   a. Burning   b. Rusting   c. Melting
5. The daytime is shorter than night in .... season.
   a. winter   b. summer   c. spring

[B] Correct the underlined words :

1. The Earth rotates around its axis once every **30** day. (...............)
2. **Solids** have indefinite shapes and volumes. (...............)
3. The **chemical change** is a change in the appearance of matter only. (...............)

11 Giza Governorate — Kerdasa Educational Zone

Answer the following questions :

1 Complete the following sentences :

1. There are three states of matter solid, ... and ....
2. Mass is the .... of matter inside an object.
3. The nearest planet to the Sun is ....
4. Silver is a shiny element, so it belongs to the .... group, while sulphur is an element doesn't have metallic luster, so it belongs to .... group.
5. .... have definite shapes and volumes, while .... have definite volumes and indefinite shapes.
6. The blue planet is ....

2 [A] Write the scientific term :

1. Anything that has a mass and a volume. (...............)
2. A dark body revolves around the Earth and reflects the sunlight. (...............)
3. The elements which are good conductors of heat and electricity. (...............)
4. The most beautiful planet. (...............)

[B] Give reason for :

1. Aluminium is used in making cooking pots.
....
2. Sequence of day and night.
....

2 Part

3 **[A] Choose the correct answer :**

1. The measuring unit of the volumes of solids is ....
   a. cm^2.   b. cm^3.   c. cm.
2. The change of matter from solid state to liquid state is ....
   a. evaporation.   b. freezing.   c. melting.
3. The Earth rotates around its axis once every .... hours.
   a. 48   b. 24   c. 12
4. Melting of ice is from ....
   a. physical changes.   b. metals.   c. chemical changes.

[B] What happens when ... ?

1. Putting a bottle of water in the freezer.
....
2. The Earth revolves around the Sun.
....

4 **[A] Put (✓) or (✗) :**

1. The biggest planet is Mercury. (   )
2. Metals have low melting point. (   )
3. The day in summer season is longer than the night. (   )
4. The measuring unit of large masses is kg. (   )

[B] Determine the kind of change physical or chemical :

1. Burning of wood : .... change.
2. Dissolving of sugar in water : .... change.
3. Melting of iron : .... change.
4. Cutting of paper : .... change.

12 Alexandria Governorate

East Zone Directorate
Taymour English School

Answer the following questions :

1 **[A] Complete the following sentences :**

1. The volume of milk is measured by ....
2. All .... and .... are good conductors of electricity.



3. The Earth rotates around itself once every .... hours.
4. Condensation is the change of matter from the gaseous state to the liquid state by ....

[B] Give reason for :

1. The apparent rotation of the Sun.

....

2. The Sun is the only star than can be seen big from the Earth although there are bigger stars than it.

....

2 [A] Write the scientific term :

1. The biggest body in the solar system. (....................)
2. The change of matter from solid into liquid. (....................)
3. Dark bodies that reflect the light of the Sun. (....................)
4. The red planet. (....................)
5. A state of matter that doesn't have a definite volume or shape. (....................)

[B] Mention the name of substance which is used in the following :

1. Making electric wires. (....................)
2. Making bridges. (....................)
3. Making jewels. (....................)

3 [A] Choose the correct answer :

1. .... is an example of chemical changes.
   a. Grinding of sugar into fine powder b. Melting of chocolate
   c. Production of yoghurt from milk d. Breaking a bottle
2. In .... , night is longer than day.
   a. summer b. winter c. spring d. autumn
3. The farthest planet from the Sun is ....
   a. Mars. b. Mercury. c. Neptune. d. Uranus.
4. Evaporation means the change from ....
   a. solid into gas. b. liquid into gas.
   c. gas into liquid. d. liquid into solid.



5. .... are liquid materials.
   a. Wood , water and vinegar
   b. Oil , iron and water
   c. Water vapour , oil and vinegar
   d. Oil , water and vinegar

[B] What happens if ... ?

1. Rising of the temperature of a piece of ice.

....

2. A nail is left in humid air.

....

---

4 [A] Put (✓) or (✗) and correct the wrong one :

1. All metals are solids except bromine which is a liquid. ( )

....

2. To measue the volume of a box , we calculate its length , width and height and then we make addition. ( )

....

3. Matter can be pressed in case of liquid matter. ( )

....

4. The sequence of the four seasons is due to the revolution of the Earth around the Sun. ( )

....

5. Mercury is the nearest planet to us. ( )

....

[B] You have a piece of aluminium and a piece of sulphur. How can you differentiate between them by using heat ?

....

....

13 Alexandria Governorate

Ibrahimieh Directorate
Franciscan Sisters School

Answer the following questions :

1 [A] Complete the following sentences :

1. Kilogram is the unit of measuring .... , while metre is the unit of measuring ....
2. .... is the biggest planet , while .... is the smallest planet.



3. Water has definite ....

4. Bending of iron is considered a .... change, while iron rusting is considered a .... change.

5. .... is the biggest body in the solar system.

[B] Give the scientific reasons :

1. The movement of shadow at different times of day.

....

2. Graphite is used in manufacturing of poles of dry cells.

....

3. Appearance of some water drops on the cover of cooking pans during cooking.

....

4. The moon is a dark body , but it seems bright.

....

---

2 **[A] A pupil placed three marbles of equal volumes in a graduated cylinder containing 10 cm^3 of water , if the water level raises up to 40 cm^3. Find the volume of each marble.**

....

....

[B] Write the scientific term :

1. A tool that is used in measuring small masses. (....................)
2. The space occupied by the object. (....................)
3. The change of matter from solid state to liquid state by heating. (....................)
4. An element used in making electric wires. (....................)

[C] Correct the underlined words :

1. **Solids** substances are changing their volumes according to the container. (....................)
2. **Evaporation** is the change of matter from a gaseous state to liquid. (....................)
3. In **winter and summer seasons** , the day hours are equal to the night hours. (....................)
4. We can determine the volume of a stone that doesn't dissolve in water by using **graduated ruler**. (....................)

2 Part

3 [A] What happens when ... ? Why ?

1. Putting a bottle of water in the freezer.
....
2. You connect some sulphur crystals with an electric circuit.
....
3. Heating a cube of sugar strongly.
....
....
4. Adding yeast to doughs, then baking.
....

[B] Put (✓) or (✗) and correct the wrong ones :

1. Water vapour is an example for liquid state. ( )
....
2. Mars is known as the blue planet. ( )
....
3. The axis of the Earth is vertical. ( )
....
4. Litre is the measuring unit that is used to measure the volume of solids. ( )
....

4 [A] Mention one difference between each of the following :

1. Physical change of matter and chemical change of matter.
....
....
2. Stars and planets.
....
....
3. Sequence of night and day phenomenon and sequence of the four seasons phenomenon.
....
....
4. Common balance and sensitive balance.
....
....

[B] Choose the correct answer :

1. The central body of the solar system is the ....
   a. Earth. b. Sun. c. moon.

2. .... substances have indefinite shapes.

a. Solids and liquids b. Solids and gases c. Liquids and gases

3. 2 kilograms = ... grams.

a. 2000 b. 200 c. 2

4. From non-metals that found in liquid state at room temperature is ....

a. carbon. b. phosphorus. c. bromine.

14 Alexandria Governorate — Saint Vincent De Paul School

Answer the following questions :

1 [A] Choose the correct answer :

1. The measuring unit of volumes of solid objects is measured in ....

a. cubic centimetre. b. cubic metre. c. all the previous

2. Electric wires are made up of ....

a. carbon. b. iron. c. copper.

3. All of the following are chemical changes except ....

a. burning. b. rusting. c. melting.

4. The biggest planet in the solar system is ....

a. Mercury. b. Jupiter. c. Mars.

5. .... is an example of non-metals.

a. Iron b. Aluminium c. Carbon

[B] Cross the odd word out in each of the following :

1. Gram – Litre – Kilogram – Ton. (...............)
2. Carbon – Bromine – Sulphur – Phosphorus. (...............)
3. Aluminium – Mercury – Iron – Copper. (...............)

[C] Give one use for the following :

1. Graduated cylinder.

....

2. Graphite.

....

3. Sensitive balance.

....

2 Part

2 [A] Complete the following statements :

1. The Sun is a .... and emits light.
2. Liquid matter is characterized by having .... volume and .... shape.
3. Planets are .... bodies that revolve around the Sun in fixed orbits.
4. The Earth is located between .... and ....
5. Elements are classified into .... and ....

[B] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Carbon	a. Jewellery.
2. Aluminium	b. Bridges.
3. Iron	c. Poles of dry cells.
4. Gold	d. Electric wires.
	e. Cooking pots

1. .... 2. .... 3. .... 4. ....

[C] Find the volume of a brick that its length 20 cm. , its width 10 cm. and its height 2 cm.

....

....

3 [A] Write the scientific term :

1. Anything occupies a space and has a mass. (....................)
2. A layer of brown colour formed on a piece of iron. (....................)
3. Simplest form of matter that can't be decomposed. (....................)
4. It is a change in the appearance of matter without any change in its structure. (....................)
5. The red planet. (....................)

[B] Give reasons for :

1. Sequence of the four seasons.

....

2. Copper and aluminium are good conductors of heat.

....

3. Melting of ice is considered a physical change.

....

4 **[A] Put (✓) or (✗) and correct the false sentences :**

1. The solar system consists of the Sun and the eight planets only. (   )
....
2. Equal volumes of different materials have equal masses. (   )
....
3. Four metres equal 40 centimetres. (   )
....
4. Cutting of paper is a chemical change. (   )
....
5. All metals are solids except bromine is liquid. (   )
....

[B] What happens when ... ?

1. The Sun doesn't face a part of the Earth.
....
2. You put a bottle of water in the freezer.
....
3. The Earth rotates around itself.
....

[C] Complete the following figure :

Solid state ← .....(1)..... ← .....(2)..... ← .....(3)..... ← Gaseous state

15 Alexandria Governorate — ElGomrok Zone, Science Inspectorate

Answer the following questions :

1 **Complete the following sentences :**

1. The Earth is located between .... and ....
2. Melting of ice is considered a .... change , while burning of sugar is a .... change.
3. Air is a matter because it has .... and ....
4. Elements are classified into .... and ....

2 Part

2 [A] Choose the correct answer :

1. Statues are made up of ....
   a. copper. b. sulphur. c. carbon.
2. The central body of the solar system is ....
   a. the Earth. b. the Sun. c. the moon.
3. Formation of iron rust is a .... change.
   a. chemical b. physical c. melting
4. The Earth's axis is ....
   a. vertical. b. inclined. c. curved.
5. Cooking pots are made up of ....
   a. graphite. b. wood. c. aluminium.
6. Apparent movement of the Sun occurs due to the ....
   a. rotation of the Earth around itself.
   b. revolution of the Earth around the Sun.
   c. revolution of the Sun around the Earth.

[B] Give reason for :

1. Electric wires are made of copper.

....

2. The Sun looks the biggest star.

....

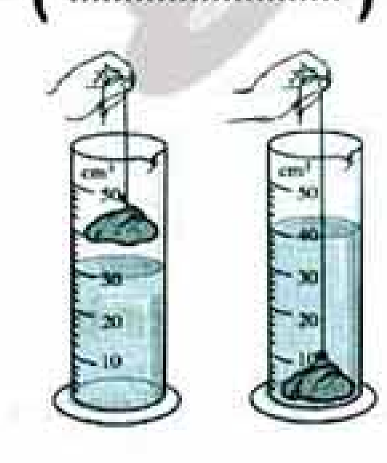
3 [A] Write the scientific term :

1. The liquid non-metal. (..................)
2. Dark bodies revolve around the planets in fixed orbits. (..................)
3. The substances that take the shapes and the volumes of their containers. (..................)
4. The planet that has coloured rings around it. (..................)
5. A season in which day is longer than night. (..................)

[B] Calculate the volume :

The measuring cylinder contains 30 cm^3 of water. When an irregular stone was put in it , the level of water became 40 cm^3. Find the volume of the stone.

The volume of the stone = ... – .... = ... cm^3.





4 [A] Put (✓) or (✗) :

1. The Sun is a star because it emits heat and light. ( )
2. Melting is the change of matter from liquid to solid state. ( )
3. On decreasing the temperature of water vapour it condenses. ( )
4. The biggest planet is Mercury. ( )
5. Water vapour is an example for gaseous state of matter. ( )
6. Electric wires are made of copper. ( )

[B] Mention one use for the following :

1. Common balance.

....

2. Carbon.

....

16 Qualyobia Governorate
El-Obour Directorate of Education
Memphis Language School

Answer the following questions :

1 [A] Choose the correct answer :

1. The volume of a solid material is measured in .... unit.
   a. cm^3 b. m^2 c. cm
2. Gold and silver are used in manufacturing of ....
   a. bridges. b. planes. c. jewels.
3. .... is an example of the chemical change.
   a. Burning of sugar. b. Ice melting. c. Water freezing.
4. The number of the planets in the solar system is ....
   a. 6 b. 9 c. 8
5. The .... is a measuring unit of mass.
   a. litre b. kilogram c. centimetre
6. The day is equal to the night in ....
   a. autumn. b. summer. c. winter.

[B] Give reason for each of the following :

1. The day in summer is longer than the day in winter.

....

2. Copper is used in the manufacture of electric wires.

....

2
Part

2 **[A] Choose the correct answer :**

1. Gram and kilogram are units of measuring ....
   a. mass. b. length. c. volume.
2. The red planet is ....
   a. Mercury. b. Mars. c. Neptune.
3. .... have definite shapes and volumes.
   a. Solids b. Liquids c. Gases
4. The Earth's axis is ....
   a. vertical. b. horizontal. c. inclined.
5. .... has low melting point.
   a. Aluminium b. Sulphur c. Copper
6. The volume of an irregular solid object is measured by ....
   a. ruler. b. common balance. c. graduated cylinder.

[B] Arrange the planets from the nearest to the farthest from the Sun :

(Uranus – Neptune – Mercury – Earth)

....

3 **[A] Write the scientific term :**

1. A unit used to measure the small masses. (..................)
2. Dark objects revolve around the Sun in fixed orbits. (..................)
3. The simplest form of matter that can't be analyzed into simpler form. (..................)
4. A planet that is called the red planet. (..................)
5. The amount of matter that the object contains. (..................)
6. The change in the appearance of matter without any change in its structure. (..................)

[B] Mention one use for :

1. Gold :
....
2. Measuring cylinder :
....

4 **[A] Correct the underlined word in each of the following :**

1. Equal volumes of different materials have **equal** masses. (..................)
2. **Measuring ruler** is a tool that is used to measure the dimensions of classroom. (..................)

3 The day is longer than night in **spring**. (....................)

4. Matter exists in **four** states. (....................)

[B] What happens when ... ?

1. The Earth revolves around the Sun.

....

2. A bottle full of water is put in the freezer for one day.

....

[C] Calculate the volume of a stone is put in a cylinder containing 30 cm^3 of water, then water level rises to 50 cm^3.

....

....

17 EL-Sharkia Governorate — Science Inspectorate

Answer the following questions :

1 Complete the following sentences :

1. Stars are shiny bodies that emit heat and ....
2. States of matter are solid, ... and ....
3. .... is a liquid metal, while .... is a liquid non-metal.
4. Burning of wood is a .... change.
5. .... have indefinite shapes and volumes.
6. Planets are .... bodies that revolve around the Sun.

2 Write the scientific term :

1. Anything that has a mass and a volume. (....................)
2. The smallest planet in the solar system. (....................)
3. The change of matter from the solid state to the liquid state. (....................)
4. The simplest form of matter that cannot be analyzed into two or more substances. (....................)
5. The space occupied by the matter. (....................)
6. The amount of matter in an object. (....................)
7. Non-metal which is a good conductor of electricity. (....................)
8. The most beautiful planet. (....................)



2 Part

3 [A] Put (✓) or (✗) :

1. Sensitive balance is used to measure the mass of jewels. ( )
2. Metals are bad conductors of heat and electricity. ( )
3. Ice is changed into water by cooling. ( )
4. The Earth's axis is inclined. ( )
5. Mars is called the blue planet. ( )
6. Liquid matter has definite shape and volume. ( )

[B] Give reason for :

1. Electric wires are made up of copper.

....

2. Sequence of day and night.

....

4 [A] Choose the correct answer :

1. Metre and centimetre are the measuring units of ....
   a. length. b. volume. c. mass. (a) and (b).
2. In .... season the day hours are longer than night hours.
   a. spring b. autumn c. summer d. winter
3. The number of planets in the solar system is ....
   a. four. b. eight. c. seven. d. six.
4. Cooking pans are made up of ....
   a. sulphur. b. copper. c. carbon. d. aluminium.
5. Carbon is used in making ....
   a. car chassis. b. statues. c. wires. d. dry cells.
6. We use .... to measure the mass of an object.
   a. measuring cylinder b. measuring tape
   c. common balance d. ruler

[B] Define :

1. Evaporation.

....

2. Freezing.

....

18 EL-Behira Governorate

Kafr El-Dawar Educational Zone
El-Safwa Private Schools

Answer the following questions :

1 Complete the following sentences :

1. Matter has .... and ....
2. .... is a measuring tool that measures the mass of jewellery.
3. .... and .... are examples of physical changes.
4. The smallest planet is ...., while the biggest planet is ....
5. Iron is used in making ....

2 [A] Choose the correct answer :

1. Water changes to ice by ....
   a. increasing mass. b. evaporation. c. heating. d. cooling.
2. .... unit is used to measure the distance between cities.
   a. Kilogram b. Kilometre
   c. Two-pans balance d. Graduated tape
3. .... is the only non-metal that is good conductor of electricity.
   a. Mercury b. Bromine c. Carbon d. Iron
4. The day is longer than night in .... season.
   a. winter b. summer c. spring d. autumn

[B] Give reason for :

1. Cooking pans are made of aluminium.
   ....
2. The number of day hours is not equal to the number of night hours.
   ....

3 [A] Write the scientific term :

1. It is the simplest form of matter that can't be analyzed into two substances or more. (...............)
2. A state of matter has definite volume and takes the shape of its container. (...............)
3. A dark body looks shiny because it reflects the sunlight. (...............)

4. It is the amount of matter that the object contains. (....................)
5. Change in the structure of matter that gives new substance with new properties. (....................)

[B] Graduated cylinder contains 50 cm^3 of water when a stone is put in it the level of water became 70 cm^3. Calculate the volume of the stone.

....

....

4 [A] Correct the underlined word :

1. Earth revolves around the Sun every **24 hours**. (....................)
2. **Venus** is called the red planet. (....................)
3. **Measuring ruler** is a tool that is used to measure the dimensions of classroom. (....................)
4. When water **freezes**, it changes into water vapour. (....................)

[B] What happens when ... ?

1. The Earth rotates around its axis.

....

2. A bottle full of water is put in the freezer for one day.

....

19 Dakahlia Governorate — Science Inspectorate

Answer the following questions :

1 [A] Complete the following statements :

1. .... planet lies between Venus and Mars.
2. Kilogram is the unit of measuring ....
3. The solar system consists of eight ....
4. Burning of wood is considered as a .... change.
5. We use .... in making bridges.

[B] Give reasons for each of the following :

1. Although the moon is a dark body, we see it shiny.

....

2. Electric wires are made of copper.

....

3. Sequence of day and night.

....

2 **[A] Choose the correct answer :**

1. The unit of measuring the volumes of solids is ....
   a. cm. b. cm^3. c. gram. d. kg.
2. A tool used for measuring the mass of matter is ....
   a. measuring cylinder. b. measuring tape.
   c. common balance. d. ruler.
3. From metals that found in liquid state at room temperature is ....
   a. mercury. b. bromine. c. water. d. aluminium.
4. Electric wires are made up of ....
   a. aluminium. b. sulphur. c. copper. d. carbon.

[B] Write the scientific term :

1. A unit used to measure the small masses. (....................)
2. Dark object revolves around the Sun and we live on it. (....................)
3. A change of matter from gaseous state to liquid state by cooling. (....................)
4. A planet called the red planet. (....................)

3 **[A] Put (✓) or (✗) :**

1. Liquid matter has definite shape and volume. ( )
2. Matter can be pressed in the gaseous state. ( )
3. The biggest planet in the solar system is Uranus planet. ( )
4. Metals are the simplest form of matter. ( )

[B] Correct the underlined words in the following statements :

1. **Sulphur** is a non-metal element and good conductor to electricity. (....................)
2. Burning of a candle is a **physical change**. (....................)

[C] The measuring cylinder contains 70 cm^3 of water when an irregular stone was put in it the level of water became 90 cm^3. Find the volume of the stone. (Write the law).

....

....

4 **[A] Arrange the following planets from the nearest planet to the farthest planet from the Sun :**

(Saturn – Earth – Venus – Neptune – Mars)

....



2 Part

[B] Mention one use for each of the following :

1. Common balance :

....

2. Aluminium :

....

3. Measuring ruler :

....

[C] Cross out the odd word :

1. Earth – Moon – Jupiter – Uranus. (........................)
2. Oxygen – Nitrogen – Carbon dioxide – Iron. (........................)
3. Gram – Kilogram – Metre – Ton. (........................)

20 Kafr El-Sheikh Governorate — Science Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. We estimate the mass of chemicals and gold by using ....
2. The nearest planet to the Sun is ...., while .... is the biggest one.
3. The day in summer season is .... than the day in winter season.
4. .... is used in making dry cells, while copper is used in ....

[B] Give reason for :

1. Although the moon is a dark body, we see it shiny.

....

2. On making tea, water drops are formed on the cover of the teapot from inside.

....

2 Choose the correct answer :

1. The liquid metal element is ....
   a. bromine. b. water. c. mercury.
2. Matter exists in .... at the ordinary room temperature.
   a. one state b. two states c. three states
3. The planet where we live ....
   a. Venus. b. Earth. c. Mars.



4. A mobile its length is 5 cm., its width equals 3 cm. and its height equals 2 cm. so the mobile volume equals ....
   a. 30 cm^3.   b. 15 cm^3.   c. 10 cm^3.
5. .... has indefinite shape and definite volume.
   a. Air   b. Oil   c. Ice
6. All the following are non-metals except ....
   a. iron.   b. nitrogen.   c. sulphur.
7. Moons revolve around ....
   a. stars.   b. asteroids.   c. planets.
8. The volume of an irregular shaped object is estimated by using ....
   a. common balance.   b. graduated cylinder containing water.
   c. ruler.

3 **[A] Write the scientific term :**

1. Elements that have metallic luster and have high melting points. (.........................)
2. The most beautiful planet. (.........................)
3. The building unit of matter and it is the simplest form of matter that can't be decomposed into two substances or more. (.........................)
4. The center of the solar system. (.........................)

[B] Choose from column (B) what is suitable for column (A) :

(A)	(B)
1. The change of matter from the liquid state into the gaseous state.	a. Melting.
2. The change of matter from the solid state into the liquid state.	b. Freezing.
3. The change of matter from the liquid state into the solid state.	c. Condensation.
4. The change of matter from the gaseous state into the liquid state.	d. Evaporation.

1. ....   2. ....   3. ....   4. ....

2 Part

4 [A] Classify the following changes into physical changes and chemical changes :

The change	The type of change
1. Dissolving sugar in water.	....
2. Rusting of iron.	....
3. Rotten of fruits.	....
4. Melting of ice.	....

[B] Arrange the following planets from the nearest to the farthest from the Sun :

(Earth – Venus – Saturn – Mars)

1. .... 2. .... 3. .... 4. ....

21 Menofia Governorate

Shbein El-Koum Directorate
Science Inspectorate

Answer the following questions :

1 Complete the following sentences :

1. The Sun is a shining star radiates .... and ....
2. The length can be measured in some units as .... or ....
3. Copper and graphite are good conductors of ....
4. The nearest planet to the Sun is ....
5. Freezing is the change of matter from .... state into .... state.

2 [A] Write the scientific term :

1. A group of elements that have high melting points. (........................)
2. Dark objects revolve around the Sun in fixed orbits. (........................)
3. The substances that don't have definite volumes or shapes. (........................)
4. A unit used to measure the small masses. (........................)
5. The change in the shape of the matter only not in its structure. (........................)

[B] Cross out the odd word :

1. Earth – Jupiter – Sun – Uranus. (........................)
2. Aluminium – Sulphur – Iron – Copper. (........................)
3. Gram – Litre – Kilogram – Ton. (........................)



3 [A] Give reasons for :

1. Sequence of day and night.

....

2. Glass is a matter.

....

[B] Correct the underlined word :

1. The axis of the Earth is **vertical**. (..................)
2. Graduated cylinder is from measuring tools of **lengths**. (..................)
3. Water vapour condenses when it touches **hot** surface. (..................)
4. **Aluminium** is used in making bridges and car chassis. (..................)
5. Earth is the **fourth** planet away from the Sun. (..................)

4 [A] Choose the correct answer :

1. .... is an example of the chemical change.
   a. Burning of sugar b. Ice melting c. Water freezing
2. From non-metals that found in liquid state at room temperature is ....
   a. carbon. b. mercury. c. bromine.
3. The number of the day hours is equal to the number of the night hours in ....
   a. summer. b. winter. c. spring.
4. If the dimensions of your book are 5 cm, 2 cm and 3 cm, so the volume of the book equals .... cm^3.
   a. 20 b. 30 c. 10

[B] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Summer	a. is called the red planet.
2. Venus	b. the day is longer than night.
3. Winter	c. the most beautiful planet.
4. Mars	d. the day is shorter than night.

1. .... 2. .... 3. .... 4. ....



2 Part

22 El-Gharbia Governorate — Central Science Supervision

Answer the following questions :

1 [A] Complete the following statements :

1. Silver is a shiny element, so it belongs to the .... group, while sulphur is an element that doesn't have metallic luster, so it belongs to .... group.
2. .... is the smallest planet, while .... is the farthest planet from the Sun.
3. Dissolving sugar in water is a .... change, while burning of sugar is a .... change.
4. The phenomenon of .... sequence results from the rotation of the Earth around its axis, while the phenomenon of the .... sequence results from the revolution of the Earth around the Sun.
5. Increasing the temperature of water to the boiling point changes water from the .... state to the .... state.
6. Kilogram is the measuring unit of .... , while metre is the measuring unit of ....

[B] Give reasons for each of the following :

1. Gold and copper are solids.

....

2. The Earth is a planet.

....

2 [A] Choose the correct answer :

1. An example of non-metals is ....
   a. iron. b. carbon. c. copper. d. aluminium.
2. The central body of the solar system is the ....
   a. Earth. b. moon. c. Sun. d. Jupiter.
3. Gold industries need .... process.
   a. melting then cooling b. condensation then cooling
   c. evaporation then cooling d. cooling then melting





4. The axis of the Earth is ....
   a. vertical. b. horizontal.
   c. inclined. d. all the previous answers.
5. The change produced as a result of ductility of copper into wires is the same change produced from ....
   a. making bread. b. melting of wax.
   c. burning of coal. d. burning of paper.
6. Three metres equal .... centimetres.
   a. 600 b. 30 c. 300 d. 3

[B] Calculate the volume of a cuboid whose length is 5 cm , its width equals 3 cm , and its height equals 2 cm.

....

....

3 [A] Write the scientific term for each of the following :

1. A unit used to measure the small masses. (....................)
2. A season in which day is longer than night. (....................)
3. The change of a matter from liquid into solid by cooling. (....................)
4. Dark body revolves around the Earth and reflects the sunlight falling on it. (....................)
5. A brittle brown layer is formed on a piece of iron. (....................)
6. A liquid metal. (....................)

[B] What would happen in the following cases ... ?

1. Boiling of water and exposing the product to a cold surface.

....

....

2. The Earth rotates around itself.

....

4 [A] Correct the underlined words :

1. **Graduated tape** is used to measure the mass of fruits. (....................)
2. In **winter and summer** seasons the day hours are equal to the night hours. (....................)
3. **Solids** are changing their shapes and volumes according to their container. (....................)



4. **Uranus** is known as the red planet. (....................)
5. **Aluminium** is used in manufacturing of the positive poles of dry cells. (....................)
6. There are **seven** planets that revolve around the Sun. (....................)

[B] Cross out the odd words :

1. Aluminium – Mercury – Iron – copper. (....................)
2. Earth – Jupiter – Moon – Uranus. (....................)

23 Port Said Governorate — Science Inspectorate

Answer the following questions :

1 [A] Choose the correct answer :

1. The number of planets in the solar system is ....
   a. eight. b. four. c. seven. d. six.
2. An example of non-metals is ....
   a. Iron. b. carbon. c. gold. d. copper.
3. The volume of a solid material is measured in ....
   a. cm. b. cm^2. c. cm^3. d. cm^4.
4. The Earth rotates around its axis once every ....
   a. 24 hours. b. year. c. 365 hours. d. 48 hours.
5. The number of the day hours is equal to the number of the night hours in ....
   a. summer. b. spring.
   c. winter. d. all of the seasons.
6. The electric wires are made up of ....
   a. copper. b. carbon. c. mercury. d. sulphur.

[B] Complete the following table :

(Sugar dissolving in water - Wood burning - Iron rusting - Wax melting)

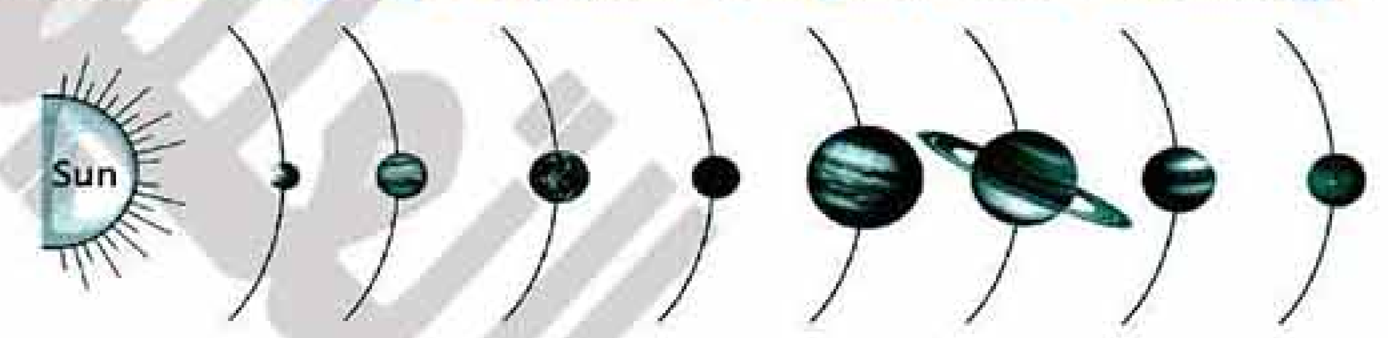
Physical change	Chemical change
....	....
....	....



2 [A] Correct the underlined words :

1. 6 metres = 800 centimetres. (..................)
2. Sulphur is a good conductor of electricity. (..................)
3. Measuring ruler is used for measuring mass. (..................)
4. There are a definite shape and a definite volume in the liquid state. (..................)

[B] Study the following figure , then complete the following :



1. The biggest planet is ....
2. The farthest planet from the Sun is ....
3. The planet which we live on is ....
4. The red planet is ....

3 Write the scientific term :

1. Everything that has a mass and a volume. (..................)
2. A group of elements have a metallic luster and good conductors of heat and electricity. (..................)
3. A liquid non-metal. (..................)
4. Dark object revolves around the Earth and reflects the sunlight falling on it. (..................)

4 Choose from the column (B) what is suitable for column (A) :

(A)	(B)
1. Change of matter from the liquid state into the gaseous state.	a. Melting.
2. Change of matter from the solid state into the the liquid state.	b. Freezing.
3. Change of matter from the liquid state into the solid state.	c. Condensation.
4. Change of matter from the gaseous state into the liquid state.	d. Evaporation.

1. .... 2. .... 3. .... 4. ....

2
Part

24 Suez Governorate — Science Inspectorate

Answer the following questions :

1 [A] Complete the following statement by the following words :

(bromine – red – iron – summer – gaseous – carbon **)**

1. The poles of dry cells are made up of ....
2. We use .... in manufacturing of bridges.
3. Water vapour is an example for .... state.
4. Mars is known as the .... planet.
5. The day is longer than the night in ....
6. The liquid non-metal is ....

[B] Correct the underlined word :

1. **Liquid** matter has definite shape and volume. (.........................)
2. The **graduated tape** is used to measure the mass of fruits and vegetables. (.........................)
3. The biggest planet is **Mars**. (.........................)
4. Neptune is called the **red** planet. (.........................)

2 [A] Choose the correct answer :

1. The change of matter from the liquid state into the gaseous state is called ....
   a. condensation. b. evaporation. c. melting.
2. Electric wires are made up of ....
   a. sulphur. b. carbon. c. copper.
3. On decreasing the temperature of water vapour it ....
   a. melts. b. freezes. c. condenses.
4. The central body of the solar system is the ....
   a. Earth. b. Sun. c. moon.
5. Metals have .... melting and boiling points.
   a. no b. low c. high
6. The number of the day hours is equal to the number of the night hours in ....
   a. summer. b. winter. c. spring.

[B] Give reasons for :

1. The Earth is a planet.

....

2. Sequence of the four seasons.

....

3 [A] Write the scientific term :

1. Dark object reflects the sun rays that fall on its surface. (....................)
2. A unit used to measure the small masses. (....................)
3. A change of matter from gaseous state to liquid state by cooling. (....................)
4. The change in the shape of matter only not in its structure. (....................)
5. A tool that used in measuring the large masses. (....................)
6. The farthest planet from the Sun. (....................)

[B] Complete the following table :

(Sugar dissolving in water – Wood burning – Iron rusting – Wax melting)

Physical changes	Chemical changes
....	....
....	....

4 [A] Put (✓) or (✗) :

1. Graduated tape is used in measuring the volume. (   )
2. The Sun is a star because it emits heat and light. (   )
3. Kilogram is the unit of measuring the mass. (   )
4. The change of paper into black ash is a chemical change. (   )

[B] A stone is put in a jar containing 30 cm^3 of water , so water level raises in the jar up to 50 cm^3. Find the volume of the stone.

....

....

[C] Arrange the following planets from the nearest to the farthest from the Sun :

(Venus – Saturn – Uranus – Mars)

The Sun : 1. .... 2. .... 3. .... 4. ....

25 Ismailia Governorate — Science Inspectorate

Answer the following questions :

1 [A] Complete the following statements :

1. The nearest planet to the Sun is .... , but the farthest planet is ....
2. Graduated ruler is used to measure .... , while graduated tape is used to measure ....
3. The states of matter are solid , ... and ....
4. The Earth revolves around the Sun once every .... and this is called ....

[B] Put (✓) or (✗) :

1. Carbon and sulphur have high melting points. (   )
2. Liquids have definite shapes and volumes. (   )
3. The electric wires are made of phosphorus. (   )
4. The day in summer is longer than the night. (   )

2 [A] Write the scientific term of each of the following :

1. The amount of matter in an object. (........................)
2. Dark bodies revolve around the Sun in fixed orbits. (........................)
3. The group of elements that have luster. (........................)
4. A tool that is used to measure the volume of a liquid. (........................)

[B] Give reason for :

1. The stars seem very small in size.

....

2. Milk is a liquid.

....

[C] Look at the opposite figure, then answer :

1. This device is called ....
2. This device is used to measure ....



3 **[A] Correct the underlined words in each of the following :**

1. **Mercury** is a liquid non-metals. (....................)
2. The axis of the Earth is **vertical**. (....................)
3. **Metre** is the measuring unit of small lengths. (....................)
4. Mars is located between Earth and **Venus**. (....................)
5. Wood and iron are from **gases**. (....................)

[B] Mention one use for :

1. Sensitive balance.

....

2. Aluminium.

....

[C] When a stone is put in a jar containing 30 cm^3 of water, the water level rises in the jar up to 80 cm^3. Find the volume of the stone.

....

....

4 **[A] Choose the correct answer :**

1. If the dimensions of a mobile phone are 10, 6, 2 cm, so its volume equals .... cm^3.
   a. 50 b. 100 c. 120 d. 18
2. Statues are made up of ....
   a. copper. b. carbon. c. oil. d. sulphur.
3. The number of day hours is equal to the number of night hours in ....
   a. summer. b. winter. c. night. d. spring.
4. The biggest body in the solar system is ....
   a. moon. b. the Sun. c. Jupiter. d. comets.

[B] Complete the following figure :

Solid state ← .....(1)..... (by heating) ← Liquid state ← .....(2)..... (by heating) ← Gaseous state

[C] Classify the following into physical changes and chemical changes :

1. Rusting of iron.

....

2. Dissolving of sugar in water.

....

3. Rotten of fruits.

....

2 Part

26 Damietta Governorate — Science Inspectorate

Answer the following questions :

1 [A] Complete the following sentences :

1. The blue planet in the solar system is .... , while the red planet is ....
2. The small masses are measured by using .... , while the volume of an irregular shaped object is estimated by using ....
3. Elements are classified into .... and ....
4. Burning of wood is a .... change , while melting of wax is a .... change.
5. Increasing water temperature changes it from .... state to .... state.

[B] Give reasons for :

1. Aluminium is used in making cooking pots.

....

2. Sequence of the four seasons of the year.

....

3. Rusting of iron is considered a chemical change.

....

2 [A] Correct the underlined words in each of the following :

1. All metals are solids , except **bromine** is a liquid element. (....................)
2. **Earth planet** is the biggest body in the solar system. (....................)
3. **Evaporation** is the change of matter from a liquid to solid state. (....................)
4. Six metres = **900** centimetres. (....................)

[B] Give an example for each of the following :

1. A measuring unit of mass. (....................)
2. An element is used in making the positive pole of battery. (....................)

[C] Mention one use for each of the following :

1. Graduated tape.

....

2. Iron.

....

3 **[A] Write the scientific term of each of the following :**

1. Anything that has a mass and a volume. (....................)
2. The nearest planet to the Sun. (....................)
3. A substance has definite shape and volume. (....................)
4. The change of a piece of chalk into powder. (....................)
5. The group of elements that has luster. (....................)

[B] What happens when ... ?

1. You leave a glass filled with ice in air for few minutes.

....

2. Grinding of sugar.

....

4 **Choose the correct answer :**

1. The closest two planets to the Earth are ....
   a. Mercury and Mars. b. Venus and Mars.
   c. Venus and Jupiter. d. Mercury and Saturn.
2. The number of day hours is equal to the number of night hours in ....
   a. spring. b. winter.
   c. summer. d. all of the seasons.
3. A metal used in making electric wires is ....
   a. aluminium. b. iron. c. carbon. d. copper.
4. Changing of matter from solid state to liquid state is called ....
   a. evaporation. b. condensation. c. melting. d. freezing.
5. The Earth's axis is ....
   a. vertical. b. horizontal.
   c. inclined. d. perpendicular.
6. The melting point of .... element is high.
   a. carbon b. silver c. sulphur d. phosphorus
7. .... matter has a definite volume and an indefinite shape.
   a. Liquid b. Gaseous c. Solid d. No
8. When a piece of stone is put in a jar containing 30 cm^3 of water, the water level raises to 50 cm^3, so that the volume of the piece of stone equals ....
   a. 20 cm^3 b. 30 cm^3 c. 50 cm^3 d. 80 cm^3



2 Part

27 Fayoum Governorate

Science Supervision for Governmental Language School

Answer the following questions :

1 Complete the following statements :

1. States of matter are ...., liquid and ....
2. We use .... in manufacturing bridges.
3. Graphite is an example of .... and it is a good conductor of ....
4. The Earth is located between .... and ....
5. Water freezes by .... and evaporates by heating.

2 [A] Choose the correct answer :

1. Electric wires are made up of ....
   a. sulphur. b. carbon. c. copper.
2. .... is an example for physical changes.
   a. Burning of candle b. Iron rust c. Dissolving of sugar in water
3. A pupil placed 4 marbles of equal volumes in 100 cm^3 graduated cylinder containing water, the water level raised up to 120 cm^3, so the volume of each marble = ... cm^3.
   a. 20 b. 25 c. 5
4. .... is the change of matter from liquid state to gaseous state.
   a. Condensation b. Evaporation c. Freezing

[B] Give reasons for :

1. Sequence of day and night.
   ....
2. Gold and copper are solids.
   ....

3 [A] Write the scientific term :

1. The nearest planet to the Sun. (............................)
2. It is the simplest form of matter that cannot be decomposed into two substances or more. (............................)
3. Dark objects revolve around the Sun in fixed orbit. (............................)
4. The transfer of ice into water. (............................)
5. The substance that has definite shape and volume. (............................)

[B] Cross the odd word :

1. Aluminium - Sulphur - Iron - Copper. (....................)
2. Earth - Jupiter - Moon - Uranus. (....................)
3. Carbon - Bromine - Phosphorus - Sulphur. (....................)

4 [A] Put (✓) or (✗) and correct the wrong ones:

1. Graduated tape is used to measure the mass of fruits. (   )
....
2. The mass of equal volumes of different materials is equal. (   )
....
3. The day and the night are equal in winter. (   )
....
4. The center of the solar system is the Sun. (   )
....

[B] Compare between :

1. Metals and non-metals according to the conductivity of heat :

Point of comparison	Metals	Non-metals
The conductivity of heat :	....	....

2. The physical change and the chemical change according to the change in the structure of a substance :

Point of comparison	Physical change	Chemical change
The change in the structure of a substance :	....	....

28 El-Minia Governorate — Minia Kawmia Language School

Answer the following questions :

1 [A] Choose the correct answer :

1. Common balance is used to measure the ....
   a. mass. b. volume. c. length.
2. .... have indefinite shapes and indefinite volumes.
   a. Solids b. Liquids c. Gases

2 Part

3. The change of matter from the liquid state to the gaseous state is known as ....
   a. evaporation. b. freezing. c. condensation.
4. The central body of the solar system is the ....
   a. Earth. b. Sun. c. moon.
5. The volume of the cuboids = ...
   a. length. b. length – width – height.
   c. length × width × height.
6. The number of the planets in the solar system is ....
   a. 4 b. 6 c. 8

[B] If the dimensions of the book are 5, 2 and 2. Calculate the volume of the book.

....

....

2 [A] Write the scientific term :

1. Anything occupies a space and has a mass. (........................)
2. Dark object reflects the sun rays that fall on its surface. (........................)
3. A tool used in measuring small lengths. (........................)
4. It is the simplest form of matter that cannot be decomposed in two substances or more. (........................)

[B] Which of the following is a chemical change and which is a physical change :

1. Melting of chocolate.

....

2. Iron rust.

....

3 [A] Correct the underlined words in the following statements :

1. The **liquid** substances have definite shapes and definite volumes. (........................)
2. Earth is the **fourth** planet away from the Sun. (........................)
3. All metals are solid elements in normal temperature except **bromine** it is a liquid element. (........................)
4. In **winter and summer** seasons, the day hours are equal to the night hours. (........................)

[B] Give reason for :

1. Graphite (carbon) is used in manufacturing of the poles of dry cells.

....

2. Gold and silver are used in making jewellery.

....

4 [A] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Mercury	a. is called the red planet.
2. The Earth	b. the biggest planet.
3. Jupiter	c. the farthest planet from the Sun.
4. Neptune	d. there are coloured rings around it.
5. Mars	e. first planet to the Sun.
	f. third planet away from the Sun.

1. .... 2. .... 3. .... 4. .... 5. ....

[B] What happens when ... ?

1. Rising of the temperature of a piece of ice.

....

2. Rotation of the Earth around its axis.

....

29 Sohag Governorate — Tahta Governmental Language School

Answer the following questions :

1 Write the scientific term of each of the following :

1. Dark objects reflect the sun rays that fall on its surface. (....................)
2. A unit used to measure the small masses. (....................)
3. A tool used to measure the volumes of liquids. (....................)
4. A change of matter from gaseous state to liquid state by cooling. (....................)

2 [A] Put (✓) or (✗) :

1. The biggest planet in the solar system is Uranus. (   )

2 Part

2. Chemical change is a change in the form of matter only. ( )
3. Graduated ruler is used to determine the volume of an irregular small stone. ( )
4. Sensitive balance is used to measure the mass of jewels. ( )

[B] Arrange the following planets from the nearest to the farthest from the Sun :

(Neptune – Venus – Mars – Earth **)**

1. .... 2. .... 3. .... 4. ....

3 Complete the following sentences :

1. Copper and graphite are good conductors of ....
2. In .... season the day is longer than the night.
3. Dissolving of sugar in water is a .... change.
4. The change of water into ice is known as .... process.
5. .... is a liquid metal, while .... is a liquid non-metal.
6. The .... is located in the center of the solar system and there are .... revolve around it in definite orbits.

4 [A] Choose the correct answer :

1. Sequence of day and night occurs due to the ....
   a. revolution of the Earth around the Sun.
   b. rotation of the Earth around its axis.
   c. revolution of the Sun around the Earth.
   d. rotation of the Sun around its axis.
2. The measuring unit of the volumes of solid objects is measured in ....
   a. m. b. cm^3. c. mm. d. all of them.
3. Cooking pots are made of ....
   a. graphite. b. sulphur. c. aluminium. d. wood.
4. Water vapour is an example of the .... state.
   a. gaseous b. solid c. liquid d. all of them

[B] Give reasons for :

1. Melting of ice is a physical change.

....

2. The Sun is a star.

....

30 Aswan Governorate

Aswan Educational Directorate
Salam Private School

Answer the following questions :

1 [A] Choose the correct answer :

1. An example of non-metals is ....
   a. iron. b. aluminium c. copper. d. carbon.
2. Changing of matter from the gaseous state to the liquid state is ....
   a. freezing. b. condensation. c. evaporation. d. melting.
3. Car frames is manufactured from iron because it ....
   a. is malleable and ductile. b. is a good conductor of electricity.
   c. has luster. d. has high melting point.
4. The measuring unit of the volumes of solid objects is ....
   a. metre. b. cm. c. cm^3. d. km.
5. From the examples of physical changes ....
   a. burning of sugar. b. burning of coal.
   c. melting of ice. d. burning of wax.

[B] Give reason for the following :

1. Sequence of the four seasons.
   ....
2. Cooking pots are made up of aluminium.
   ....

2 [A] Write the scientific term :

1. A tool that used in measuring large masses. (..................)
2. The substances that don't have definite volumes or shapes. (..................)
3. The nearest planet to the Sun. (..................)
4. Anything occupies a space and has a mass. (..................)
5. One of the solar system planets that has coloured rings around it. (..................)

[B] What happens when ... ?

1. Putting a bottle of water in the freezer.
   ....

2. Putting a piece of wet iron in a jar filled with dry oxygen.

....

3 [A] Complete the following :

1. Graphite is a form of carbon and it is a good conductor of ....
2. The group of .... has metallic luster, while the group of .... doesn't have.
3. .... is the smallest planet, while .... is the farthest planet from the Sun.
4. Rot of fruits is considered as a .... change.
5. The length can be measured in some units as .... and ....

[B] Here are 4 figures indicating the day and night during 24 hours, write the suitable season under each one :

night
day

1. .... 2. .... 3. .... 4. ....

4 [A] Put (✓) in front of the right sentence and (✗) in front of the wrong ones :

1. 1 kilogram = 100 grams. ( )
2. The biggest planet is Mars. ( )
3. Graduated tape is used in measuring the volume. ( )
4. Element is the simplest form of matter that cannot be decomposed into two substances or more. ( )
5. We can determine the volume of an irregular small stone by using measuring cylinder. ( )
6. Statues are made up of copper. ( )

[B] Compare between : A star and a planet :

A star	A planet
....	....
....	....
....	....
....	....

PART 3 Final Examinations



Some exams questions have been modified according to the ministry modifications for the first term 2019 - 2020

PART 3

1 Cairo Governorate — Nozha Language Schools

Answer the following questions :

1. **[A] Choose the correct answer :**

1. There are .... planets at the solar system.
   a. 7 b. 8 c. 9
2. The volume of .... can be measured by using the graduated cylinder only.
   a. gases b. liquids c. (a) and (b)
3. The types of changes that occur to the matter are .... types.
   a. 2 b. 3 c. 4
4. .... takes the shape and the volume of its container.
   a. Milk b. Air c. Aluminium
5. The Sun is a star because it ....
   a. reflects light. b. radiates light. c. allows light to pass through.
6. The change produced as a result of ductility of copper into wires is the same change produced from ....
   a. making bread. b. burning of coal. c. melting of iron.

[B] Put (✓) or (✗) :

1. The Earth rotates around its axis causing the sequence of the four seasons. ( )
2. Volume is the space occupied by the object. ( )
3. Liquids are evaporated by cooling. ( )
4. Element is the simplest form of matter that can be decomposed into two substances or more. ( )
5. The solar system consists of Sun, planets, moons and celestial bodies. ( )
6. Non-metals are malleable and ductile. ( )

2. **[A] Correct the underlined words :**

1. Carbon is used in manufacturing of **negative** poles of dry cells. (..........)
2. **Cm** is the measuring unit of the volume of solid objects. (..........)
3. Phosphorus and sulphur are **gaseous** non-metals. (..........)

4. **Uranus** and **Neptune** are the nearest two planets to the Earth.
(..................... / ....)
5. **Non-metals** are good conductors of electricity and have luster. (.....................)
6. **Evaporation** is the change of matter from the gaseous state to the liquid state by cooling. (.....................)

[B] Choose from column (B) what is suitable in column (A) :

(A)	(B)
1. Metre	a. used to measure the mass of small objects that is made of gold.
2. Sensitive balance	b. is anything that has mass and volume.
3. Silver	c. used to measure the length of a table.
4. Graduated tape	d. a unit that equals 100 centimetres.
5. Matter	e. used in making jewellery.

1. .... 2. .... 3. .... 4. .... 5. ....

3. [A] Complete the following statements :

1. Melting is the change of matter from .... state into .... state.
2. .... is the blue planet, while .... is the most beautiful planet.
3. Adding yeast in baking is a .... change, while dissolving table salt in water is a .... change.
4. .... is a dark body that rotates around the Earth and it .... the sunlight.
5. Solids and .... have a definite ....

[B] Give reasons for :

1. The Sun seems bigger to us than the other stars.
....
....
2. Burning a piece of paper is a chemical change.
....
....

4. [A] Choose the correct answer :

(Mercury - Uranus - Jupiter - Mars)

1. The coldest planet : ....
2. The nearest planet to the Sun : ....

PART 3

3. The red planet : ....
4. The biggest planet : ....

[B] Write the scientific term :

1. The amount of matter in an object. (..........................)
2. They are formed due to the rotation of the Earth around the Sun every 365.25 days. (..........................)
3. It is used in making car chassis and bridges. (..........................)
4. Dark bodies that revolve around the Sun in fixed orbits. (..........................)
5. A liquid metal. (..........................)
6. The change in the appearance of the substance without any change in its structure. (..........................)

[C] What happens when ... ?

1. You put a bottle of water in the freezer.

....

....

2. The Earth's axis becomes vertical.

....

....

2 Cairo Governorate — Saint Mary's Language School

Answer the following questions :

1. [A] Choose the correct answer

1. The distances between cities are measured in ....
   a. metre. b. kilogram. c. kilometre. d. ton.
2. .... matter has a definite volume & takes the shape of its container.
   a. Solid b. Liquid c. Gaseous d. (a) & (b)
3. Burning of wood is a / an .... change.
   a. grinding b. ice cycle c. chemical d. physical
4. .... is the biggest body in the solar system.
   a. Earth b. Sun c. Moon d. Mars
5. Hours of day are longer than hours of night in the .... season.
   a. winter b. summer c. spring d. autumn



6. Electric wires are made up of ....

a. sulphur. b. carbon. c. copper. d. wood.

[B] Calculate :

The volume of your classroom whose length = 5 m, width = 4 m and height = 3 m.

....

....

[C] Rearrange the following planets according to their distances from the Sun (from the nearest to the farthest) :

(Jupiter - Uranus - Mercury - Mars)

....

....

2. [A] Write the scientific term :

1. A liquid non-metal. (......................)
2. The change of matter from solid state to liquid state by heating. (......................)
3. A dark body revolves around the Earth & reflects sunlight. (......................)
4. The amount of matter in an object. (......................)
5. The simplest pure substance that can't be decomposed into two substances or more. (......................)
6. The non-metal which is used in making dry batteries. (......................)

[B] Correct the underlined words :

1. **Iron** is a liquid metal found at room temperature. (......................)
2. **Venus** is the blue planet. (......................)
3. Small masses are measured by a **graduated cylinder**. (......................)
4. Metre = **10** centimetres. (......................)
5. On decreasing the temperature of water, it **condenses**. (......................)
6. **Aluminium** is used in manufacturing of bridges. (......................)

3. [A] Complete the following statements :

1. The sequence of day and night is due to rotation of .... around ....
2. Dissolving of sugar in water is a .... change.
3. 2 kilometres = ... metres.

PART 3

4. Adding sodium bicarbonate to vinegar produces .... gas.

5. .... is the red planet.

[B] What happens when ... ?

1. The Earth rotates around the Sun once every year.

....

....

2. Putting a glass bottle filled with water in freezer.

....

....

[C] What is the name of the measuring tool used in measuring ... ?

1. Large masses : ....

2. Volume of liquids : ....

4. [A] Put (✓) or (✗) :

1. The measuring ruler is used to measure the length of your book. ( )
2. Matter exists in 4 states. ( )
3. Metals are malleable and ductile. ( )
4. Oxygen and nitrogen are non-metals. ( )
5. Taste of sugar changes by grinding. ( )
6. The Sun is located in the center of the solar system ( )

[B] Give reasons for :

1. Sun is a star.

....

....

2. Adding yeast to dough during baking is a chemical change.

....

....

[C] A cylinder is filled completely with water and three equal-sized stones are put into it, if a quantity of water of volume 30 cm^3 is spilled. Calculate the volume of each stone.

....

....

....

3 Cairo Governorate

East Nasr City Educational Zone

Answer the following questions :

1. Complete the following statements :

1. Common balance is used for measuring ...., while .... is used to measure small lengths.
2. The red planet is ...., while the blue planet is ....
3. Silver is a shiny element so it belongs to .... group, while sulphur is an element having no luster so it belongs to .... group.
4. Liquids have .... volumes and indefinite ....
5. Melting is the change of matter from .... state into .... state.

2. [A] Give reasons for :

1. Sequence of the four seasons.

....

....

2. Car is a matter.

....

....

3. Electric wires are made up of copper.

....

....

[B] Choose the correct answer :

1. The biggest planet is ....
   a. Earth. b. Mercury. c. Jupiter.
2. From metals that found in a liquid state at room temperature is ....
   a. mercury. b. bromine. c. water.
3. The unit of measuring the volume of solids is ....
   a. cm. b. cm^3. c. kg.
4. There are .... planets in the solar system.
   a. 9 b. 7 c. 8



PART 3

5. Cooking pots are made up of ....

a. sulphur. b. aluminium. c. carbon.

6. Graduated cylinder is used to measure the .... of an object.

a. volume b. mass c. length

3. [A] Write the scientific term for each of the following :

1. The change of matter from liquid state to gaseous state. (....................)
2. The space occupied by the matter. (....................)
3. The most beautiful planet. (....................)
4. Dark object revolves around the Earth and reflects the sunlight. (....................)
5. A unit used to measure the small masses. (....................)
6. State of matter has definite volume and shape. (....................)
7. Tool used to measure the mass of small objects as jewels. (....................)
8. Non-metal which is a good conductor of electricity. (....................)

[B] Mention the type of change (physical or chemical) for each :

1. Melting of ice : ....
2. Burning of wood : ....

4. [A] Correct the underlined words :

1. **Mars** is the nearest planet to the Sun. (....................)
2. Water vapour is a **liquid** matter. (....................)
3. Gas changes into liquid by **heating**. (....................)
4. The moon seems shiny as it **emits** sunlight. (....................)
5. Matter exists in **two** states. (....................)
6. Three metres equal **100** cm. (....................)

[B] What is the type of the phenomenon resulted from ... ?

Rotation of the Earth around its axis.

....

....

[C] Give one use for :

1. Gold and silver : ....
2. Iron : ....

4 Cairo Governorate — St. Joseph's Language School

Answer the following questions :

1. [A] Complete the following statements :

1. The chemical change is the change in the ...., while the physical change is the change in the ....
2. The positive poles of the dry cell are made up of ...., while electric wires are made up of ....
3. The sequence of day and night occurs due to the rotation of the .... around ....
4. The mass of fruits is measured by .... tool, while the .... of liquids is measured by graduated cylinder.

[B] Give reasons for :

1. Although the moon is a dark body, we see it shiny.

....

2. Decreasing the amount of water in a teapot when it is boiled for sometime.

....

2. [A] Write the scientific term :

1. A dark body revolves around the Sun and we live on it. (............................)
2. The change that occurs to the iron when it rusts. (............................)
3. The liquid non-metal. (............................)
4. The measuring unit of small lengths. (............................)

[B] What happens when ... ?

1. You connect a piece of sulphur with an electric circuit that has a lamp and why ?

....

....

....

2. The Earth rotates around the Sun once every year.

....

....

PART 3

3. [A] Choose the correct answer :

1. .... is the measuring unit of small masses.
   a. kg b. gm c. Kilometre
2. Changing of water vapour to water is called ....
   a. evaporation. b. melting. c. condensation.
3. .... is the biggest body in the solar system.
   a. Jupiter b. Sun c. Earth
4. Adding table salt to water with stirring produces ....
   a. a new substance. b. physical change. c. chemical change.

[B] Mention one use for :

1. Sensitive balance.
....
2. Aluminium.
....

4. [A] Put (✓) or (✗) and correct :

1. Solid state can be pressed. ( )
....
2. Melting of wax is a physical change. ( )
....
3. The day in summer is shorter than the day in winter. ( )
....
4. All non-metals are bad conductors of electricity. ( )
....

[B] Define :

1. Mass.
....
2. Freezing process.
....

5 Cairo Governorate — Mena Language School

Answer the following questions :

1. [A] Complete the following statements :

1. Kilogram is the unit of measuring ....
2. Matter that takes the shape of its container and its volume cannot be changed is ....

3. We use .... in manufacturing bridges.
4. The group of elements that have luster known as ....

[B] Write the scientific term :

1. It is the simplest form of matter that cannot be decomposed into two substances or more. (........................)
2. Dark objects revolve around the Sun in fixed orbits. (........................)
3. An element used in making electric wires. (........................)
4. The biggest planet in the solar system. (........................)

2. [A] Choose the correct answer :

1. The volume of a solid object is measured in ....
   a. cm. b. cm^2. c. cm^3. d. metre.
2. The change of matter from the liquid state into the gaseous state is called ....
   a. condensation. b. evaporation. c. melting. d. freezing.
3. Cooking pots are made up of ....
   a. aluminium. b. iron. c. sulphur. d. carbon.
4. The nearest planet to the Sun is ....
   a. Earth. b. Mercury. c. Neptune. d. Jupiter.

[B] Give reasons for :

1. Carbon is used in making positive poles of dry cells.
   ....
   ....
2. The stars seem very small in size.
   ....
   ....

3. [A] Compare between each of the following (one point only for each) :

1.

Melting of wax	Burning of wax
....	....

2.

Planet	Star
....	....

PART 3

[B] Put (✓) or (✗) :

1. One kilogram = 100 grams. (   )
2. Mars is the blue planet. (   )
3. The Sun is a planet that emits light. (   )
4. Ruler is used to measure small lengths. (   )
5. Iron has low melting point. (   )
6. Mercury is a liquid metal element. (   )

4. [A] Choose from column (B) what is suitable in column (A) :

(A)	(B)
1. The change of matter from the liquid state into the gaseous state	a. Melting.
2. The change of matter from the solid state into liquid state	b. Freezing.
3. The change of matter from liquid state into solid state.	c. Condensation.
4. The change of matter from gaseous state into liquid state.	d. Evaporation.

1. .... 2. .... 3. .... 4. ....

[B] Find the volume of a box whose length = 3 cm., width = 2 cm. and, height = 1 cm.

Volume of box = ...

6 Cairo Governorate — Basateen & Dar El-Salam Edu. Adm.

Answer the following questions :

1. [A] Choose the correct answer :

1. Matter has only .... state(s).
   a. one b. two c. three d. four
2. All of these substances have definite shape and volume except ....
   a. iron. b. water. c. wood. d. sugar.
3. Liquids take the .... of their containers.
   a. volumes only b. shapes only
   c. shapes and volumes d. no correct answer



4. Putting a bottle of water in the freezer for 24 hours is ....
   a. a chemical change.
   b. a physical change.
   c. a formation of a new substance
   d. (a) and (c).
5. The stars ....
   a. are lightening bodies.
   b. are dark bodies.
   c. are bodies that don't emit light and heat.
   d. all the previous answers.
6 The tool used to measure small masses like jewels is ....
   a. sensitive balance.
   b. common balance.
   c. ruler.
   d. (a) , (b) and (c).
7. All of the following elements are good conductors of electricity except ....
   a. copper.
   b. iron.
   c. carbon.
   d. sulphur.

[B] What happens when ... ?

You put a cold glass sheet over a container containing water vapour coming from boiling water.

....

....

2. [A] Mention the scientific term :

1. A change in the structure of the substance that gives a new substance with new properties. (....................)
2. The smallest and the nearest planet to the Sun in the solar system. (....................)
3. The change of the matter from the gaseous state to the liquid state. (....................)
4. Unit used to measure the dimensions of your classroom. (....................)

[B] Give reasons for :

1. Iron is a solid matter.

....

2. Carbon is used in making the positive electrodes of the dry cell.

....

3. [A] Put (✓) or (✗) :

1. Mass is the space that is occupied by the object. ( )
2. Metre is the measuring unit of small lengths. ( )

PART 3

3. Matter changes from the solid state into the liquid state by heating. ( )

4. The biggest two planets are Mars and Mercury. ( )

[B] Calculate :

The volume of a box its length is 5 cm., the width is 6 cm. and the height is 2 cm.

....

....

4. [A] Match from column (A) what suits it from column (B) :

(A)	(B)
1. The change of matter from the solid state into the liquid state.	a. liter or milliliter
2. The change of matter from the gaseous state into the liquid state.	b. Melting
3. Liquid volumes measuring unit.	c. Matter
4. Everything that has a mass and occupies a space.	d. Condensation

1. .... 2. .... 3. .... 4. ....

[B] Write one use for the following :

1. Graduated tape :

....

2. Two pans balance :

....

[C] Look at the following figures, then answer the questions :

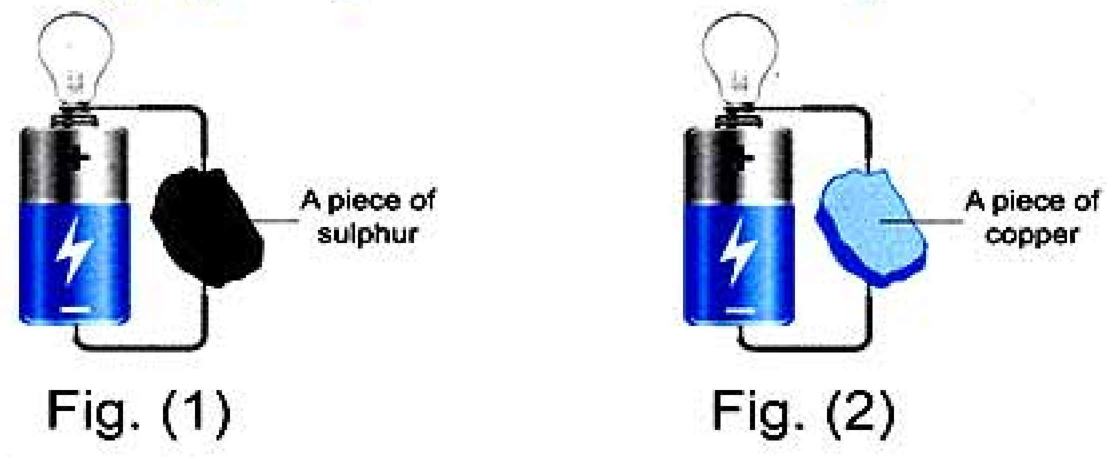


Fig. (1) Fig. (2)

1. Which lamp will glow ? ....

2. Explain the reason for your answer.

....

....

7 Giza Governorate — Dar El-Hanan Language School

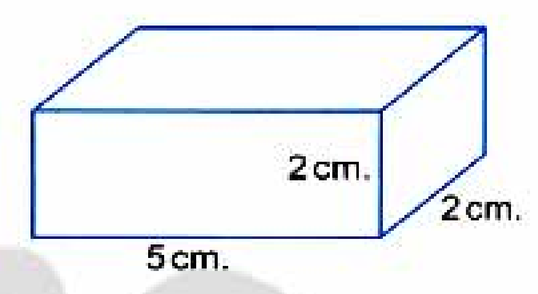
Answer the following questions :

1. [A] Complete the following sentences by using these words :

(Mercury – carbon – metals – non-metals – Neptune)

1. The group of .... has metallic luster, but the group of .... doesn't have.
2. The positive pole of the electric cells are made up of ....
3. The nearest planet to the Sun is .... , while the farthest planet is ....

[B] Problem :



The volume of the box that is shown in the figure

= .... × .... × .... = ... cm^3

2. [A] Correct the underlined words in each of the following :

1. Common balance is used to measure the **volume** of objects. (....................)
2. Matter exists in **four** states. (....................)

[B] Give reasons for :

1. Iron and copper are good conductors of heat.

   ....

2. Although the moon is a dark body, we see it shiny.

   ....

3. [A] Give one difference between :

Melting of wax	Burning of candle
....	....

[B] What happens when ... ?

1. You expose a shiny iron nail to wet air for a certain period.

   ....

2. Rotation of the Earth around itself.

   ....

PART 3

4. [A] Write the scientific term of each of the following statements :

1. Anything that has a volume and a mass. (....................)
2. The state of matter that has indefinite shape and indefinite volume. (....................)
3. It is the simplest form of matter that can't be decomposed into two substances or more. (....................)
4. Shiny bodies that emit heat and light in the space. (....................)

[B] Choose the correct answer :

1. Cooking pots are made up of ....
   a. graphite. b. wood. c. aluminium. d. sulphur.
2. The change of matter from liquid state into gaseous state is called ....
   a. melting. b. freezing.
   c. evaporation. d. condensation.

8 Giza Governorate — El-Agoza Directorate

Answer the following questions :

1. [A] Complete the following sentences :

1. The Sun is a shining star that radiates .... and ....
2. Dissolving of table salt in water is a .... change, while iron rusting is a .... change.
3. Melting is the change of matter from .... state into .... state.
4. The red planet is .... , while the blue planet is ....

[B] Arrange the following planets beginning from the nearest to the farthest from the Sun :

(Earth - Neptune - Jupiter - Mercury)

....

2. [A] Choose the correct answer :

1. The mass of objects is measured by using ....
   a. common balance. b. graduated cylinder. c. graduated tape.



2. Electric wires are made up of ....

a. sulphur. b. carbon. c. copper.

3. The Earth rotates around its axis once every ....

a. 24 days. b. 24 weeks. c. 24 hours.

4. The number of planets in the solar system is ....

a. 4 b. 8 c. 6

[B] Cross out the odd word :

1. Earth - Moon - Jupiter - Uranus. (......................)

2. Aluminium - Sulphur - Iron - Copper. (......................)

3. [A] Write the scientific term :

1. The amount of matter that the object contains. (......................)

2. The non-metal which is a good conductor of electricity. (......................)

3. A dark body that revolves around the Earth and it reflects the sunlight. (......................)

4. The biggest planet in the solar system. (......................)

[B] Put (✓) or (✗) :

1. Gold is used in making jewels. ( )

2. Non-metals have high melting points. ( )

4. [A] Give reasons for :

1. Aluminium is used in manfacturing of cooking pots.

....

2. The sequence of day and night.

....

[B] Correct the underlined words in each of the following :

1. The <u>**chemical**</u> change is a change in the appearance of matter only.

(......................)

2. The shiny bodies that have different sizes are called <u>**moons**</u>. (......................)

PART 3

9 Giza Governorate — Al-Haram Educational Zone

Answer the following questions :

1. Complete the following statements :

1. Matter is everything has .... and ....
2. Common balance used to measure ...., but measuring ruler used to measure ....
3. Elements are classified into .... and ....
4. Burning of wood is considered as .... change, but melting of ice is .... change.
5. The Earth is located between .... and ....

2. Choose the correct answer :

1. The biggest planet is ....
   a. Earth. b. Mercury. c. Jupiter. d. Mars.
2. Electric wires are made up of ....
   a. sulphur. b. copper. c. iron. d. carbon.
3. The number of planets in the solar system is ....
   a. 4 b. 6 c. 8 d. 9
4. The volume of a solid material is measured by ....
   a. cm. b. cm^2. c. cm^3. d. metre.
5. The only liquid metal is ....
   a. wood. b. mercury. c. air. d. copper.
6. The axis of the Earth is ....
   a. upright. b. vertical. c. inclined. d. minimized.

3. [A] Write the scientific term :

1. Dark bodies revolve around the Sun in fixed orbits. (..........................)
2. The amount of matter that the object contains. (..........................)
3. The planet which has coloured rings. (..........................)
4. A state of matter that has indefinite shape and volume. (..........................)
5. Anything that occupies a space and has a mass. (..........................)
6. A change in the appearance of matter without any change in its structure. (..........................)

[B] Find the volume of a box whose length = 3 cm. , width = 2 cm. and height = 1 cm.

Volume of box = ... × .... × height
= .... × .... × ....
= .... cm^3

4. **[A] Put (✓) or (✗) :**

1. On decreasing the temperature of water, it freezes. (   )
2. The day is shorter than the night in summer. (   )
3. The unit of measuring mass is gram. (   )
4. Liquid has definite shape and volume. (   )
5. Mars is the most beautiful planet. (   )
6. The graduated ruler used to measure the mass. (   )

[B] Arrange the following planets according to the nearest from the Sun :

(Venus - Jupiter - Neptune - Earth - Mars - Mercury)

....
....

10 Giza Governorate — Omrania Educational Zone

Answer the following questions :

1. **[A] Complete the following statements :**

1. Freezing is a change of matter from .... state to .... state.
2. Ice is the .... state of water.
3. Statues are made up of .... element, while the bridges are made up of .... element.
4. Elements are classified into .... and ....

[B] Arrange the following planets according to the distance from the Sun (from the nearest to the farthest) :

(Venus - Jupiter - Earth - Mercury - Mars)

....

2. **Write the scientific term for the following sentences :**

1. The change of matter from liquid state to gaseous state. (....................)
2. Anything that has a mass and a volume. (....................)

PART 3

3. A tool used to measure the mass of small objects as jewels. (........................)

4. A dark body rotates around the Earth and reflects the sunlight. (........................)

5. The biggest body in the solar system. (........................)

6. State of matter that takes the shape and volume of its container. (........................)

3. Choose the correct answer :

1. Non-metal that is used to make the positive pole of dry cell is ....
   a. copper. b. sulphur. c. carbon.
2. The only liquid metal is ....
   a. mercury. b. wood. c. bromine.
3. .... state has an indefinite shape and a definite volume.
   a. Liquid b. Solid c. Gaseous
4. Graduated cylinder measures the .... of objects.
   a. mass b. volume c. length
5. The axis of the Earth is ....
   a. upright. b. vertical. c. inclined.
6. The planet that has coloured rings around it is ....
   a. Mercury. b. Earth. c. Saturn.

4. [A] Put (✓) or (✗) :

1. The day in summer season is longer than night. ( )
2. Water vapour condenses when it touchs a cold surface. ( )
3. The Earth rotates around its axis once every 24 day. ( )
4. All non-metals are bad conductors of heat and electricity. ( )

[B] Which of the following is a physical change and which is a chemical change ?

1. Dissolving of salt in water. (........................)
2. Burning of wood. (........................)
3. Rusting of iron. (........................)
4. Melting a piece of ice. (........................)

11 Alexandria Governorate — El-Gomrok Educational Zone

Answer the following questions :

1. Choose the correct answer :

1. Liquids take the .... of their containers.
   a. volumes only b. shapes only c. shapes and volumes
2. The Earth's axis is ....
   a. inclined. b. straight. c. curved.
3. We see the moon shining because it ....
   a. absorbs light. b. radiates light. c. reflects light.
4. Which of the following is considered as a physical change ? ....
   a. Burning of fuel. b. Melting of a candle. c. Iron rust.
5. The cooking pots are made up of ....
   a. aluminium. b. sulphur. c. wood.
6. The volume of liquid matter is measured by using a ....
   a. common balance. b. measuring ruler. c. measuring cylinder.

2. [A] Write the scientific term :

1. The change of matter from liquid state to solid state. (........................)
2. The largest body in the solar system. (........................)
3. Elements, which are bad conductors of heat and electricity. (........................)
4. A unit used to measure the large lengths. (........................)

[B] Give reasons for :

1. Air is a matter.

   ....

2. Sequence of day and night.

   ....

   ....

3. [A] Complete the following statements :

1. The nearest planet to the Sun is .... , while .... is the farthest planet from the Sun.
2. Three kilograms = ... grams.
3. The planet that has coloured rings is ....



PART 3

4. Iron rusting is a .... change, while dissolving of table salt in water is considered as a .... change.

[B] Mention one use :

1. Copper : ....

2. Sensitive balance : ....

4. [A] Correct the underlined words :

1. **Iron** is used in making dry cells (batteries). (........................)

2. The liquid metal is **bromine**. (........................)

3. **Solid** matter has an indefinite volume and shape. (........................)

4. The **planet** emits light and heat. (........................)

[B] Calculate the volume of a box which has width 3 cm. , length 5 cm. and height 2 cm.

The volume of box = ... × .... × ....

= .... × .... × .... cm^3

12 Alexandria Governorate — South Alex. Educational Zone

Answer the following questions :

1. [A] Correct the underlined words in each of the following :

1. Three metres = **200** centimetres. (........................)

2. **Jupiter** is located between Venus and Mars. (........................)

3. **Evaporation** of matter is changing it from gaseous state to liquid state. (........................)

4. Iron rust is a **physical change**. (........................)

5. **Ruler** is used to measure mass. (........................)

6. Matter exists in **four** states. (........................)

[B] Put (✓) or (✗) :

1. The Earth is located in the center of the solar system. (   )

2. Gaseous matter has an indefinite shape and an indefinite volume. (   )

3. Carbon and sulphur don't have luster. (   )

[C] Find the volume of box whose length = 3 cm. , width = 2 cm. and height = 1 cm.

Volume = ... × .... × ....

= .... × .... × ....

2. **[A] Complete the following sentences :**

1. The Sun is a shining star that radiates .... and ....
2. Melting is the change of matter from .... state into .... state.
3. A matter has .... and ....

[B] Choose the correct answer :

1. The coldest planet of the solar system is ....
   a. Jupiter. b. Uranus. c. Earth.
2. The number of the planets in the solar system is ....
   a. 4 b. 7 c. 8
3. The space occupied by an object is called ....
   a. length. b. volume. c. mass.
4. Metal used in making electric wires is ....
   a. copper. b. iron. c. gold.
5. Common balance is used to measure .... of an object.
   a. volume b. length c. mass
6. The measuring unit of length is ....
   a. kg. b. gm. c. cm.

3. **[A] Classify :**

Water – Air – Milk – Car – Wood – Oxygen

Solids	Liquids	Gases
....	....	....
....	....	....

[B] Give reasons for :

1. Stars seem to be small in the sky.
....
2. Iron is a solid matter.
....

4. **[A] Write the scientific term :**

1. The simplest form of matter that cannot be decomposed into two substances or more. (..............)

PART 3

2. Dark object revolves around the Earth and reflects the sunlight falling on it. (....................)
3. A group of elements that has metallic luster. (....................)
4. The state of matter has an indefinite shape and definite volume. (....................)
5. The red planet in the solar system. (....................)
6. A tool that is used to measure the volume of liquids. (....................)

[B] Match from column (B) which suits it in column (A) :

(A)	(B)
1. The farthest planet from the Sun	a. Freezing.
2. The nearest planet to the Sun	b. Mass.
3. The most beautiful planet	c. Mercury.
4. Change of matter from liquid to gaseous	d. Neptune.
5. The amount of matter in an object	e. Venus.
6. Change of matter from liquid to solid	f. Evaporation.

1. .... 2. .... 3. ....
4. .... 5. .... 6. ....

13 Alexandria Governorate — East Alex. Educational Zone

Answer the following questions :

1. Complete the following statements :

1. Lengths of objects are measured by some units as .... and ....
2. Carbon is from .... and it's a good conductor of ....
3. Melting of wax is .... change, while burning of sugar is .... change.
4. Mars is known as .... planet, while Neptune is known as .... planet.
5. Condensation process is the change of matter from .... state to .... state by cooling.
6. Stars are .... bodies , while planets are .... bodies.

2. [A] Write the scientific term :

1. Change of matter from liquid state to solid state by cooling. (....................)
2. A tool used for measuring volume of liquids. (....................)
3. The most beautiful planet. (....................)

[B] Circle the odd word out :

1. Earth - Moon - Jupiter - Uranus. (....................)
2. Kg - Ton - cm^3 - Gram. (....................)
3. Iron - Mercury - Copper - Gold. (....................)

3. [A] Choose the correct answer :

1. Statues are made up of ....
   a. copper. b. carbon. c. sulphur.
2. Phenomenon of sequence of day and night happens due to the rotation of the Earth around ....
   a. Sun. b. its axis. c. moon.
3. All of the following are chemical changes except ....
   a. cutting paper. b. rusting iron. c. burning sugar.
4. The state of matter that its volume doesn't change but it takes the shape of its container is .... state.
   a. solid b. liquid c. gaseous

[B] Give reasons for :

1. Big stars seem small in the sky.
....
....
2. Cooking pots are made up of aluminium.
....
....

4. [A] Put (✓) or (✗) :

1. Solids have definite volumes and shapes. ( )
2. Electric wires are made up of carbon. ( )
3. Moon looks bright in the sky as it radiates light. ( )
4. Ice is a solid state of water. ( )

[B] Find the volume of a box whose length is 10 cm. , width = 5 cm. and height = 2 cm.

Volume = ... × .... × ....
= .... × .... × ....

14 Qalyoubia Governorate — Memphis Language School

Answer the following questions :

1. Complete the following sentences by using these words :

(physical – Sun – changes – dark – chemical – planets – liquid – matter – gaseous – non-metals – melting – metals)

1. Elements are classified into .... and ....
2. Planets are .... bodies that revolve around th Sun in fixed orbits.
3. On transferring water from one container to another its shape ....
4. Melting of ice is considered as a .... change, while burning of sugar is a .... change.
5. .... locates at the center of the solar system and there are .... revolve around it.
6. Ice can be changed into water by .... process.
7. Condensation is the change of matter from .... state into .... state.

2. [A] Give reasons for :

1. Copper and aluminium are good conductors of heat.

....

2. The stars seem very small in size.

....

[B] Choose the correct answer :

1. Moons revolve around ....
   a. stars. b. planets. c. asteroids. d. galaxy.
2. Matter changes from one state to another by ....
   a. heating only. b. cooling only.
   c. stirring. d. heating or cooling.
3. The unit of measuring the volumes of solids is ....
   a. cm. b. cm. c. cm^3. d. cm^2.
4. The farthest planet from the Sun is ....
   a. Venus. b. Neptune. c. Saturn. d. Uranus.

3. **[A] Write the scientific term :**

1. It is the change in the structure of matter producing a new substance with new properties. (....................)
2. A season in which night is shorter than day. (....................)
3. A planet called the red planet. (....................)
4. Non-metal used in making positive poles of dry cells. (....................)

[B] Put (✓) or (✗) :

1. On rising the temperature of a piece of wax, it melts. (   )
2. Kilogram and gram are the measuring units of length. (   )
3. 3 kg = 3000 grams. (   )
4. Liquid matter have definite shapes and volumes. (   )

4. **[A] Mention the name of substance which is used in the following :**

1. Making bridges. (....................)
2. Making jewels. (....................)
3. Making coins. (....................)

[B] A box has a length 4 cm. , its width 3 cm. , and its height 2 cm. Calculate its volume.

....

....

[C] Compare between each of the following (one point for each) :

Melting of wax	Burning of wax
....	....
....	....

Planet	Star
....	....
....	....

PART 3

15 Menoufia Governorate — Sheeben El-Koum Educational Zone

Answer the following questions :

1. **[A] Complete the following statements :**

1. The red planet is ....
2. The nearest planet to the Sun is ....
3. The Earth rotates around its axis once every .... hours.
4. From the solid non-metals is ....
5. The axis of the Earth is ....
6. The planets revolve around the Sun in ....

[B] Put (✓) or (✗) :

1. Liquid matter can be pressed. (   )
2. The blue planet is Mars. (   )
3. The graduated tape is from the units of length. (   )
4. The air has a mass and a volume. (   )
5. Melting of ice is a physical change. (   )
6. The volume is the space occupied by a matter. (   )

2. **[A] Write the scientific term :**

1. It is the amount of matter in an object. (...............)
2. It is the change in the structure of the substance producing a new substance with different properties. (...............)
3. It is the change of matter from liquid state to a solid state by cooling. (...............)
4. It is everyting that has a mass and a volume. (...............)
5. It consists of the Sun, the eight planets, moons and other celestial bodies. (...............)
6. They have definite shape and volume. (...............)

[B] What happens when ... ?

1. Heating a sugar cube in a beaker then tasting it.

....

....

2. The Earth's axis is vertical and not inclined.

....

....

3. Leaving a dish containing salty water in the Sun for a long period of time.

....

....

3. [A] Match from column (B) what suits it in column (A) :

(A)	(B)
1. They have metallic luster	a. mass
2. The liquid metal	b. volume
3. The biggest body in the solar system	c. length
4. The liquid non-metal	d. mercury
5. The sensitive balance is used to measure	e. bromine
6. The graduated tape is used to measure	f. Jupiter
	j. Sun
	h. metals

1. .... 2. .... 3. ....

4. .... 5. .... 6. ....

[B] Circle the odd word out :

1. Earth - Moon - Venus - Mars. (........................)
2. Iron - Copper - Sulphur - Aluminium. (........................)
3. Metre - Liter - Common balance - Ton. (........................)

4. [A] Give reasons for :

1. The air is a gaseous matter.

....

....

2. The sequence of day and night.

....

....

3. Formation of water droplets on the leaves of plants and cold surfaces in the early morning.

....

....

[B] Write one use for each of the following :

1. Iron : ....
2. Aluminium : ....
3. Copper : ....
4. Carbon : ....
5. Common balance : ....
6. Graduated cylinder : ....

PART 3

16 El-Gharbia Governorate — Gharbia Educational Directorate

Answer the following questions :

1. [A] Complete the following statements :

1. Measuring tool of small masses is .... , while .... is the tool we use to measure large lengths.
2. The states of matter which have definite volumes are .... and ....
3. Rusting of iron is .... change, whereas .... of candle doesn't change its structure.

[B] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Statues	a. good conductor of electricity.
2. Mercury	b. liquid non-metal.
3. Carbon	c. made of copper.
4. Bromine	d. used in making electric wires.
	e. the smallest planet.

1. .... 2. .... 3. .... 4. ....

2. [A] Choose the correct answer in each of the following :

1. The measuring tool used for measuring the volume of liquids is ....
   a. graduated cylinder. b. graduated tape. c. measuring ruler.
2. The matter that takes the shape and the volume of its container is called ....
   a. solid. b. liquid. c. gas.
3. There is life on .... planet.
   a. Earth b. Jupiter c. Mars
4. .... of sugar is considered as a chemical change.
   a. Dissolving b. Burning c. Grinding

[B] Give reasons for :

1. We cannot use sulphur in making dry cells.

....

....

2. Although the Sun is a medium sized star, it appears to us bigger than other stars.

....

....

3. **[A] Write the scientific term for each of the following :**

1. The simplest form of matter that can't be decomposed into two substances or more. (....................)
2. The dark celestial body that appears shiny as it reflects the sunlight falling on its surface. (....................)
3. The change of matter from gaseous state to liquid state when decreasing its temperature. (....................)
4. The Sun, eight planets, moons and other celestial bodies. (....................)

[B] Problem :

Find the volume of your pencilcase if you know that its length equals 10 cm., its width equals 5 cm. and its height equals 2 cm.

....

....

4. **[A] Correct the underlined words :**

1. **Iron** is used in manufacturing of cooking pots. (....................)
2. On decreasing the temperature of milk, it **boils**. (....................)
3. The Earth's axis is **vertical**. (....................)
4. Litre and millilitre are the measuring units of **mass** of liquids. (....................)

[B] What would happen in the following cases ... ?

1. The Earth rotates around the Sun.

....

....

2. A piece of ice is heated.

....

....

PART 3

17 El-Dakahlia Governorate — Dakahlia Educational Directorate

Answer the following questions :

1. [A] Choose the correct answer :

1. The distance between Mansoura and Cairo is measured by ....
   a. metres. b. kilograms. c. kilometres. d. centimetres.
2. .... is the biggest body in the solar system.
   a. The Earth b. Jupiter c. Mercury d. The Sun
3. Gold and silver are used in manufacturing of ....
   a. bridges. b. planes. c. jewels. d. doors.
4. .... is used to measure the volume of a liquid.
   a. Balance b. Measuring tape c. Graduated cylinder d. Ruler
5. .... has a low melting point.
   a. Aluminium b. Sulphur c. Iron d. Copper

[B] Give reasons for :

1. Sequence of day and night.
   ....
   ....
2. Carbon is used in manufacture of positive poles of batteries.
   ....
   ....

2. [A] Complete the following :

1. Rotten of fruits is .... change, but freezing of water is .... change.
2. The nearest two planets to the Earth are .... and ....
3. .... is the tool used to measure the masses of fruits, while .... is the tool used to measure the length of the book.
4. The solid state of water is .... but its gaseous state is ....

[B] If the length of a box = 5 cm., width = 4 cm. and the height = 6 cm. Calculate the volume of the box.

The volume = ... × .... × ....
= .... × .... × ....

3. [A] Correct the underlined words :

1. The Earth rotates around the Sun once every **24** days. (..................)
2. **Freezing** is the change of matter from liquid to gas. (..................)
3. Mars is known as the red planet, because its rocks contain **sulphur**. (..................)
4. **Solids** have indefinite shapes and definite volumes. (..................)
5. Statues are made up of **carbon**. (..................)
6. Matter can be pressed in its **liquid** state. (..................)

[B] Cross the odd word out :

1. Aluminium - Mercury - Iron - Copper. (..................)
2. Venus - Jupiter - Moon - Saturn. (..................)
3. Kilometre - Metre - cm. - cm^3 (..................)
4. Oxygen - Nitrogen - Carbon dioxide - Copper. (..................)

[C] Arrange the following planets from the nearest to the Sun :

(Neptune - Mars - Saturn - Venus)

....

4. [A] Write the scientific term of each of the following :

1. The season in which day hours are shorter than hours of the night. (..................)
2. The space occupied by the matter. (..................)
3. A dark body revolves around the Sun and we live on it. (..................)
4. A group of elements have metallic luster. (..................)
5. The change of ice into water. (..................)
6. The simplest form of matter that can't be decomposed into two or more substances. (..................)

[B] Define :

Matter : ....





PART 3

[C] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. Jupiter is	a. the most beautiful planet.
2. Non-metals	b. the center of the solar system.
3. Venus is	c. the biggest planet.
4. The Sun is	d. are bad conductors of heat.

1. .... 2. .... 3. .... 4. ....

18 Ismailia Governorate — Ismailia Educational Directorate

Answer the following questions :

1. Complete the following sentences by using these words :

(Metals - Copper - Physical - Non-metals - Gram - Iron - Heating - Chemical - Sensitive balance - Cooling)

1. Elements are classified into .... and ....
2. Melting of ice is a .... change, while burning of sugar is a .... change.
3. .... is used in manufacturing of bridges, while .... is used in manufacturing of electric wires.
4. The mass of a ring made of gold is measured with .... and its unit is ....
5. Matter can be changed from one state to another state by .... and ....

2. [A] What happens when ... ?

1. Putting a bottle of water in the freezer.
....
....
2. Leaving the wet iron nail in the air.
....
....
3. The Earth rotates around its axis.
....

[B] Cross the odd word out :

1. Carbon dioxide - Oxygen - Silver. (........................)
2. Ton - Kilometre - Metre. (........................)
3. Uranus - Moon - Venus. (........................)

3. **[A] Write the scientific term :**

1. A state of matter that has a definite volume and an indefinite shape. (....................)
2. It is the amount of matter that the object contains. (....................)
3. The unit used to measure large masses as vegetables. (....................)

[B] Calculate the volume of the shown box its length = 5 cm., its width = 2 cm. , its height = 1 cm.



....

....

4. **[A] Correct the underlined words :**

1. **Water** is an example of gaseous state of matter. (....................)
2. Graduated cylinder is from measuring tools of **length**. (....................)
3. Cooking pots are made up of **wood**. (....................)
4. Sun is a **planet**. (....................)

[B] Choose from column (B) what suits it in column (A) :

(A)	(B)
1. The Earth	a. is called the red planet.
2. Jupiter	b. is the biggest planet.
3. Neptune	c. is the farthest planet from the Sun.
4. Mars	d. is the nearest planet to the Sun.
	e. is the third planet away from the Sun.

1. .... 2. .... 3. .... 4. ....

19 Port Said Governorate — Science Inspectorate

Answer the following questions :

1. **Complete the following sentences :**

1. We use .... in manufacturing of bridges.
2. Copper and graphite are good conductors of ....
3. The Earth is located between .... and ....
4. Matter has .... and ....



2. [A] Choose the correct answer :

1. Cooking pots are made up of ....
   a. aluminium. b. iron. c. sulphur.
2. The number of the planets in the solar system is ....
   a. 4 b. 8 c. 6
3. Gold and silver are used in manufacturing of ....
   a. bridges. b. planes. c. jewels.
4. The volume of a solid material is measured by ....
   a. cm. b. cm^2 c. cm^3

[B] Choose from column (B) that is suitable for column (A) :

(A)	(B)
1. change of matter from liquid state into gaseous state.	a. Melting
2. change of matter from solid state into liquid state.	b. Freezing
3. change of matter from liquid state into solid state.	c. Condensation
4. change of matter from gaseous state into liquid state.	d. Evaporation

1. .... 2. .... 3. .... 4. ....

3. [A] Write the scientific term :

1. The group of elements that have luster. (....................)
2. A unit used to measure the small masses. (....................)
3. Simplest form of matter that cannot be decomposed into two substances or more. (....................)

[B] Correct the underlined words :

1. The Sun is a **planet** and it emits light. (....................)
2. All metals are solids except **bromine** is a liquid. (....................)
3. **Graduated tape** is used to measure mass of fruits and vegetables. (....................)

4. [A] Give a reason for the following :

The moon is a dark object but we see it shining at night.

....

[B] What happens when ... ?

Putting a bottle of water in the freezer.

....

....

[C] Classify :

(Dissolving sugar - Wood burning - Iron rusting - Wax melting)

Physical change	Chemical change
....	....
....	....
....	....
....	....

[D] Complete the following :

1. The smallest planet is ....
2. The red planet is ....
3. The biggest planet is ....
4. The farthest planet from the Sun is ....

Sun

20 Damietta Governorate — Science Inspectorate

Answer the following questions :

1. [A] Complete the following sentences :

1. Cooking pots are made up of ....
2. Positive poles of electric cells are made up of ....
3. Burning of wood is considered as a .... change.
4. The group of elements that doesn't have luster is known as ....

[B] Give reasons for :

1. Electric wires are made up of copper.

....

....

2. The Sun is a star.

....

....

2. [A] Correct the underlined words :

1. **Graduated cylinder** is used to measure the mass. (....................)
2. **Bromine** is a liquid metal. (....................)

PART 3

3. **Freezing** is the change of matter from the solid state into the liquid state. (....................)

4. Breaking of chalk is a **chemical change**. (....................)

5. A matter has a mass and **length**. (....................)

[B] Arrange the following planets according to the nearest to the Sun :

(Neptune - Venus - Uranus - Mars - Earth - Saturn)

....

3. [A] Write the scientific term :

1. The biggest planet in the solar system. (....................)
2. The measuring unit of small lengths. (....................)
3. A metal is used in making electric wires. (....................)
4. It consists of the Sun, the eight planets, moons and other celestial bodies. (....................)
5. A season in which day is longer than night. (....................)

[B] Cross the odd word out :

Iron - Aluminium - Mercury - Sulphur. (....................)

4. [A] Put (✓) or (✗) :

1. Chemical change is a change in the structure of matter. (   )
2. Iron is used in making car chassis. (   )
3. The number of day hours is equal to the number of night hours in winter. (   )
4. Liquid matter have definite shapes and volumes. (   )

[B] (1) What happens when ... ?

Putting a wet iron nail exposed to the air for some days.

....

....

(2) Mention one use for :

Gold : ....

21 Fayoum Governorate

Science Supervision for Governmental Language School

Answer the following questions :

1. Complete the following sentences :

1. States of matter are ...., liquids and ....
2. We use .... in manufacturing of bridges.
3. Burning of wood and coal are examples of .... changes.
4. Graduated cylinder used to measure the .... of liquids.
5. The day is longer than night in .... season.

2. Choose the correct answer :

1. Cooking pots are made up of ....
   a. iron. b. aluminium. c. sulphur.
2. Physical change of matter causes ....
   a. changing of the appearance.
   b. changing of the structure.
   c. forming new matter.
3. The mass of an elephant is measured in .... unit.
   a. km b. gm c. ton
4. The biggest planet in the solar system is ....
   a. Saturn. b. Uranus. c. Jupiter.
5. The Earth has ....
   a. one moon. b. two moons. c. no moons.
6. .... is the change of matter from liquid state to gaseous state.
   a. Condensation b. Evaporation c. Freezing

3. Correct the underlined words in the following statements :

1. Electric wires are made up of **iron**. (...............)
2. Stone, iron and copper are **gases**. (...............)
3. Centimetre, metre and kilometre are measuring units of **mass**. (...............)
4. The rotation of Earth around its axis causes the sequence of **the four seasons**. (...............)



PART 3

5. **Earth** is the center of the solar system. (....................)
6. Rotten of fruits is an example of the **physical** change. (....................)

4. **[A] Write the scientific term for each of the following statements :**

1. Elements have metallic luster and good conductors of heat and electricity. (....................)
2. Anything that occupies space and has a mass. (....................)
3. A state of matter that can be pressed inside cylinders. (....................)
4. The period of time that the Earth takes to complete one cycle around the Sun. (....................)

[B] Give reasons for :

1. The big stars seem small to us.
....
2. Water is a liquid matter.
....
....

22 Assiut Governorate — Assiut Educational Directorate

Answer the following questions :

1. **Complete the following sentences :**

1. Matter has .... and ....
2. The common balance is used for measuring ....
3. We use .... in manufacturing of bridges.
4. Melting of wax is a .... change, while burning of wax is a .... change.
5. States of matter are .... , ... and ....
6. .... is the smallest planet, while .... is the farthest planet from the Sun.
7. The group of elements that have luster is known as ....

2. **[A] Choose the correct answer :**

1. The change of matter from liquid state into gaseous state is called ....
   a. condensation. b. evaporation. c. freezing.

2. Electric wires are made up of ....

a. sulphur. b. carbon. c. copper.

3. The biggest planet is ....

a. the Earth. b. Jupiter. c. Neptune.

4. The Sun is a star because it .... light.

a. reflects b. radiates c. absorbs

5. The volume of a solid object is measured in ....

a. cm. b. cm^2. c. cm^3.

[B] Find the volume of the box shown in the figure.

1 cm.
3 cm.
5 cm.

....

....

3. [A] Write the scientific term :

1. The state of matter that has definite shape and definite volume. (..................)
2. The change of matter from solid state into liquid state. (..................)
3. A measuring unit of length. (..................)
4. It's the simplest form of matter that cannot be decomposed into two substances or more. (..................)
5. Dark objects revolve around the Sun in fixed orbits. (..................)

[B] Give a reason for :

The moon is a dark body but we see it shining.

....

....

4. Correct the underlined words :

1. The graduated cylinder is used to measure the **mass**. (..................)
2. All metals are solids except **bromine** is liquid. (..................)
3. **Chemical** change is a change in the shape of matter only. (..................)
4. The sequence of seasons is occurred due to rotation of the Earth around **its axis**. (..................)
5. **Sulphur** is a non-metal and good conductor of electricity. (..................)
6. The number of the planets in the solar system is **6**. (..................)

PART 3

23 Aswan Governorate — Al-Mostaqbal Language Schools

Answer the following questions :

1. [A] Complete the following sentences :

1. Kilogram is the unit of measuring ....
2. Matter can be pressed in case of its .... state.
3. We use .... in manufacturing of bridges.
4. Burning of wood is considered as a .... change.

[B] Give reasons for :

1. The moon is a dark body but we see it shining.

....

....

2. The stars seem very small in size.

....

....

2. [A] Write the scientific term :

1. It is the simplest form of matter that cannot be decomposed into two substances or more. (...............)
2. A group of elements having luster , good conductors of electricity and heat , have high melting points , malleable and ductile and all of them are solids except mercury which is a liquid. (...............)
3. Dark objects revolve around the Sun in fixed orbits. (...............)
4. A dark object revolves around the Earth and reflects the sunlight falling of it. (...............)

[B] Compare between stars and planets according to definition :

Stars	Planets
....	....
....	....
....	....

3. **[A] Choose the correct answer :**

1. A stone is put in a jar containing 30 cm^3 of water, water level rises in the jar up to 50 cm^3, so that the volume of the stone equals ....
   a. 20 cm^3 b. 30 cm^3 c. 50 cm^3
2. Electric wires are made up of ....
   a. sulphur. b. carbon. c. copper.
3. .... is an example of the physical changes.
   a. Burning of a candle b. Dissolving of sugar in water c. Iron rust
4. Carbon is characterized by ....
   a. good conductor of heat. b. good conductor of electricity.
   c. malleable and ductile.

[B] What happens when ... ?

1. Putting a bottle of water in the freezer.
   ....
   ....
2. Putting some sugar in a beaker over a flame.
   ....
   ....

4. **[A] Choose from column (B) that is suitable for column (A) :**

(A)	(B)
1. The change of matter from the liquid state into the gaseous state.	a. Melting
2. The change of matter from the solid state into the liquid state.	b. Freezing
3. The change of matter from the liquid state into the solid state.	c. Condensation
4. The change of matter from the gaseous state into the liquid state.	d. Evaporation

1. .... 2. .... 3. .... 4. ....

[B] What is the type of the phenomena resulted from ... ?

1. Rotation of the Earth around its axis.
   ....
2. Revolution of the Earth around the Sun.
   ....

PART 3

24 Luxor Governorate — Science Inspectorate

Answer the following questions :

1. [A] Complete the following statements :

1. Common balance is used for measuring .... , while graduated cylinder is used for measuring ....
2. .... is the biggest body in the solar system, while .... is the biggest planet.

[B] Cross the odd word out :

1. Evaporation - Melting - Burning of sugar - Freezing. (....................)
2. Iron - Aluminium - Mercury - Sulphur. (....................)

2. [A] Write the scientific term for each of the following :

1. The change in the structure of a substance producing a new substance or new substances with different properties. (....................)
2. A dark object revolves around the Earth and reflects the sunlight falling on it. (....................)
3. An element used in making cooking pots. (....................)
4. A planet called the red planet. (....................)

[B] Give reasons for :

1. The sequence of the four seasons.

....

....

2. Copper is used in the manufacture of electric wires.

....

....

3. [A] Correct the underlined words in these statements :

1. There are **9** planets that revolve around the Sun. (....................)
2. All metals are solid elements except **bromine**. (....................)
3. The farthest planet from the Sun is **Uranus**. (....................)
4. The graduated ruler is used to measure the **mass**. (....................)

[B] Calculate the volume of a cuboid whose length is 5 cm., its width equals 3 cm., and its height equals 2 cm.

....

....

4. [A] Choose the correct answer :

1. Gold and silver are used in manufacturing of ....
   a. bridges. b. planes. c. jewels. d. electric wires.
2. The most beautiful planet in shape in the solar system is ....
   a. Earth. b. Saturn. c. Venus. d. Neptune.
3. The change of matter from the liquid state into the gaseous state is called ....
   a. condensation. b. evaporation. c. melting. d. freezing.
4. The number of the day hours are less than the number of the night hours in ....
   a. summer. b. winter.
   c. spring. d. all of the seasons.

[B] What happens when ... ?

1. Putting a bottle full of water in the freezer for a day.
   ....
   ....
2. The Earth rotates around its axis.
   ....
   ....

25 South Sinai Governorate — Sinai Educational Administration

Answer the following questions :

1. [A] Complete the following statements :

1. Kilogram is the unit of measuring .... , but metre is the unit of measuring ....
2. Melting of wax is a .... change, while burning of wax is a .... change.

PART 3

3. Evaporation is the change of matter from a .... state into a .... state.
4. Mars is known as .... planet, while Neptune is the .... planet.
5. Silver is shiny element, it belongs to the .... group, while sulphur is an element having no luster so it belongs to .... group.

[B] What happens when ... ?

1. Putting a small amount of sugar in a beaker over a flame.
....
....
2. Boiling of water and exposing the product to a cold surface.
....
....

2. [A] Correct the underlined words :

1. Changing of ice into water is a **condensation** process. (....................)
2. The graduated tape is used to measure **the volume**. (....................)
3. **Non-metals** have high melting points. (....................)
4. Water vapour is an example of **liquid** state. (....................)
5. The Sun is a **planet** that emits heat and light. (....................)
6. **Saturn** is the nearest planet to the Sun. (....................)
7. **The chemical** change is the change in the appearance of matter without a change in its structure. (....................)

[B] What is the type of the phenomena resulted from ... ?

1. Rotation of the Earth around its axis.
....
2. Revolution of the Earth around the Sun.
....

[C] Mention the use of the following :

1. Iron : ....
2. Gold : ....
3. Copper : ....

3. [A] Choose the correct answer :

1. Carbon is characterized by ....
   a. good conductor of heat.
   b. malleable and ductile.
   c. good conductor of electricity.

2. An example of physical change is ....
   a. rotten of fruits.
   b. dissolving of salt in water.
   c. burning of coal.
3. The measuring unit of volume of solid object is ....
   a. cm.
   b. cm^2.
   c. cm^3.
4. The center of the solar system is ....
   a. the Sun.
   b. the Earth.
   c. the moon.
5. The most beautiful planet in the solar system is ....
   a. Earth.
   b. Saturn.
   c. Venus.
6. Changing the matter from liquid state to solid state is accompanied with ....
   a. increase in temperature.
   b. decrease in temperature.
   c. constant heat.
7. The cooking pots are made up of ....
   a. aluminium.
   b. iron.
   c. plastic.

[B] Choose from column (B) that is suitable for column (A) :

(A)	(B)
1. The biggest planet.	a. Mercury
2. The planet on which we live.	b. Jupiter
3. Iron rusting.	c. Earth
4. Liquid metal element.	d. Physical change
5. Used to measure the volume of irregular solid object.	e. Chemical change
	f. Graduated cylinder

1. .... 2. .... 3. .... 4. .... 5. ....

4. [A] Write the scientific term :

1. A tool used to measure the mass. (....................)
2. Everything that has a mass and occupies a space. (....................)
3. Elements which are bad conductors of heat. (....................)
4. A planet in the solar system which has a big number of coloured rings rotate around it. (....................)
5. Dark bodies revolve around the Sun in fixed orbits. (....................)
6. The simplest form of matter that cannot be decomposed into two substances or more. (....................)



PART 3

[B] Give reasons for the following :

1. The moon is a dark body but we see it shining.

....

2. Stars seem very small in size.

....

3. Iron, copper and aluminium are good conductors of heat.

....

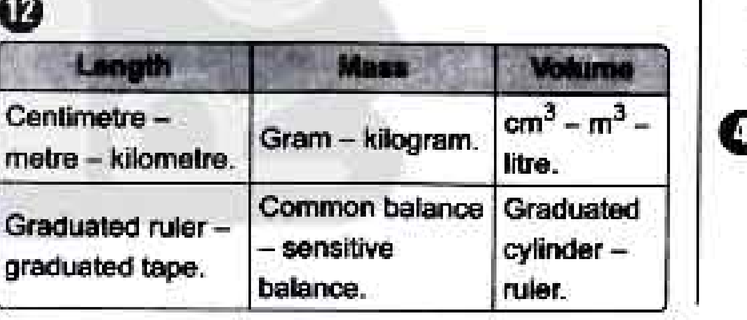
[C] Compare between solid state, liquid state and gaseous state according to the shape :

State of matter	Solid state	Liquid state	Gaseous state
The shape	....	....	....

Unit One

Lesson 1

1
1. b. volume.
2. d. mass and volume.
3. d. mass and volume.
4. c. Graduated ruler and graduated tape
5. a. centimetre — 6. b. 500
7. b. Sensitive balance
8. c. common balance — 9. b. mass
10. c. 1 ton. — 11. c. kilogram
12. c. sensitive balance
13. a. length x width x height.
14. d. (a) and (b). — 15. a. 20
16. a. measuring cylinder. — 17. b. 2
18. d. cm^3
19. b. measuring cylinder. — 20. a. 20 cm^3
21. a. 20 — 22. d. 5 cm^3
23. a. 20 cm^3
24. c.



2 1. d — 2. a — 3. e — 4. b — 5. c

3
1. (✗) Mass .... — 2. (✓)
3. (✗) Gram is ....
4. (✗) Centimetre and metre ....
5. (✗) Metre is ...., while centimetre is ....
6. (✓)
7. (✗) .... measure the mass of small objects, while ....
8. (✓) — 9. (✗) Litre (or cm^3 or m^3) ....
10. (✗) .... = 1000 metres.
11. (✗) Graduated cylinder ....
12. (✓)
13. (✗) .... its length, its width and its height.
14. (✓)
15. (✗) .... is (C).
16. (✗) Graduated cylinder ....
17. (✗) .... have different masses.
18. (✗) .... of water doesn't equal ....

4
1. Matter. — 2. Mass.
3. Volume. — 4. Matter.
5. Graduated ruler and graduated tape.
6. Centimetre.
7. Sensitive balance.
8. Common balance.
9. Gram. — 10. Kilogram.
11. Graduated cylinder. — 12. Ton.
13. Volume of a cuboid.
14. Cubic metre (m^3) and cubic centimetre (cm^3).
15. Litre, cubic centimetre and millilitre.

5
1. mass – volume. — 2. matter.
3. Mass — 4. volume.
5. length. — 6. length.
7. centimetre – metre.
8. Centimetre — 9. the large lengths.
10. Centimetre – kilometre — 11. 300
12. Kilometre
13. The two-pans balance (common balance)
14. Sensitive balance — 15. Gram – kilogram
16. Ton
17. the mass of vegetables and fruits.
18. 1000 — 19. 1000
20. large masses.
21. Graduated cylinder
22. volume – the volume of irregular solid bodies.
23. m^3 – cm^3 — 24. volume
25. volume
26. Graduated cylinder – sensitive balance
27. mass – volume. — 28. 1000
29. length – width – height.
30. different masses.

6
1. 600 — 2. Common balance
3. mass — 4. graduated cylinder.
5. Common balance

7
1. Because it occupies a part of space.
2. Because it has a mass and a volume.
3. Because it has a mass and a volume.
4. Because the pieces of stone have volume which is replaced by the volume of spilled water.
5. Because sugar is soluble in water.

8
1. It is used to measure the length of objects.
2. It is used to measure the length of objects.
3. It is used to measure the mass of fruits and vegetables.
4. It is a tool that measures the mass of small objects as gold and chemicals in labs.
5. It is used to measure the volumes of liquids and irregular solid bodies.

9
1. It is everything that occupies a part of space and has a mass.
2. It is the amount of matter that the object contains.
3. It is the space that is occupied by the object.

10
1. The larger unit is metre, because 1 metre = 100 centimetres.
2. The larger unit is ton, because 1 ton = 1000 kilograms.
3. The larger unit is kilometre, because 1 kilometre = 1000 metres.
4. The larger unit is kilogram, because 1 kilogram = 1000 grams.
5. The larger unit is litre, because 1 litre = 1000 millilitres.

11
1. The volume of the piece of stone $= V_2 - V_1 = 40 - 25 = 15\ cm^3$
2. The volume of each marble $= 12 \div 6 = 2\ cm^3$
3. The volume of the cuboid = Length × width × height $= 5 \times 3 \times 2 = 30\ cm^3$
4. $40 - 30 = 10\ cm^3$
5. Length = 8 cm, width = 4 cm, height = 2 cm.
   The volume of the mobile phone = length × width × height $= 8 \times 4 \times 2 = 64\ cm^3$
6. a. $V_2 - V_1 = 120 - 100 = 20\ cm^3$
   b. $20 \div 4 = 5\ cm^3$

12

Length	Mass	Volume
Centimetre – metre – kilometre.	Gram – kilogram.	cm^3 – m^3 – litre.
Graduated ruler – graduated tape.	Common balance – sensitive balance.	Graduated cylinder – ruler.

13 The three cubes are made of the same matter, because they have equal volumes and equal masses.

14 Look at the main book on page (12).

Times Questions

1 a. Box (X).

2 The volume of the 2 marbles = 2 + 2 = 4 cm^3
The reading of the graduated cylinder after putting the 2 marbles in it = 30 + 4 = 34 cm^3

3 a. b) The iron box.
b. volumes - different

4 The volume of the cube = length × width × height $= 3 \times 3 \times 3 = 27\ cm^3$

Lesson 2

1
1. b. water. — 2. a. solid
3. b. shapes only — 4. b. gold.
5. d. equal to that in (B) and (C).
6. b. Ice — 7. c. Oxygen
8. c. Gaseous — 9. b. volumes.
10. c. Liquids and gases — 11. a. gaseous
12. d. water. — 13. d. melting
14. a. melting then cooling — 15. b. Ice.
16. c. evaporation.
17. b. the liquid state into the gaseous one.
18. b. condenses. — 19. d. condensation.
20. b. condensation
21. d. a decrease in temperature.
22. b. a decrease in heat.

2 1. d — 2. a — 3. b — 4. c

3
1. (✗) Oil, milk .... — 2. (✓)
3. (✓) — 4. (✓)
5. (✗) Solid matter .... — 6. (✓)
7. (✗) .... from solid state to liquid state ....
8. (✗) Evaporation is ....
9. (✗) .... by heating.
10. (✗) Melting is ....
11. (✗) .... is the gaseous state of ....
12. (✓) — 13. (✓) — 14. (✓)

4
1. Solid state.
2. Gaseous state. — 3. Liquid matter.
4. Gaseous substances (Gases).
5. Gaseous substances (Gases).
6. Liquid matter.

7. Liquid and gaseous states.
8. Freezing. 9. Evaporation.
10. Condensation. 11. Gaseous state.
12. Melting. 13. Melting process.
14. Evaporation. 15. Freezing.

5
1. solid – liquid – gaseous.
2. wood – liquid 3. solid
4. solid 5. liquid – gaseous
6. solid 7. liquid matter.
8. shape 9. shapes.
10. definite – indefinite 11. gaseous – shape
12. gaseous 13. liquid
14. heating – cooling.
15. solid – water vapour
16. heating.
17. the solid – the liquid 18. melting
19. evaporation.
20. water vapour. 21. cold
22. gaseous – liquid 23. water – cooling.
24. cooling – freezing. 25. solid
26. liquid – solid

6
1. an indefinite shape. 2. an indefinite
3. Gases 4. evaporates
5. Evaporation 6. Freezing
7. condensation

7
1. Because salt has a definite shape and volume, while oil has a definite volume and an indefinite shape.
2. Because it has indefinite volume and shape.
3. Because water is a liquid matter, so it takes the shape of its container.
4. Because wood is a solid substance.
5. Because water is a liquid substance that has indefinite shape, but gravels are solid substances that have definite shapes.
6. Because oxygen is a gaseous substance.
7. Because ice takes heat from the air, so it melts and changes into water.
8. Due to the condensation of water vapour on the lid of the teapot.
9. Because water changes into ice by cooling.
10. Due to the condensation of water vapour found in the air on the outer surface of the bottle.
11. Because gaseous matter takes the shape and the volume of its container.
12. Because copper is a solid matter.
13. Because when water changes into ice, its volume increases, so the bottle will explode.

8
1. Water will take the shape of the glass container.
2. The volume of water doesn't change, but its shape changes.
3. The shape and volume of the air inside the balloon change by changing the shape and the volume of the balloon.
4. The piece of ice melts and changes into water.
5. Water changes into water vapour then water vapour condenses on the cold surface and changes into water.
6. Water freezes and changes into ice.
7. Ice changes into water and also water drops are formed on the outer surface of the glass.
8. The bottle will explode as the volume of water increases by freezing.

9
1. It is the change of matter from the solid state to the liquid state by heating.
2. It is the change of matter from the liquid state to the gaseous state by heating.
3. It is the change of matter from the gaseous state to the liquid state by cooling.
4. It is the change of matter from the liquid state to the solid state by cooling.

10
1. Look at the main book on page (34).
2.

Points of comparison	Melting process	Evaporation process
1. Definition :	It is the change of matter from the solid state to the liquid state by heating.	It is the change of matter from the liquid state to the gaseous state by heating.
2. Example :	Changing of ice into water.	Changing of water into water vapour.

Points of comparison	Condensation process	Freezing process
1. Definition :	It is the change of matter from the gaseous state to the liquid state by cooling.	It is the change of matter from the liquid state to the solid state by cooling.
2. Example :	Changing of water vapour into water.	Changing of water into ice.

11
1. Condensation process. 2. Melting process.
3. Melting process. 4. Freezing process.

12

Solids	Liquids	Gases
Table salt.	Oil.	Air.
Sugar.	Kerosene.	Oxygen.
Iron pieces.	Mercury.	Water vapour.
Ice.	Water.	

13
1 , 3 and 6 as they are solids.

14
(1) melting. (2) freezing
(3) evaporation (4) condensation.

Timss Questions

1 c. State (A) is liquid , state (B) is gaseous and state (C) is solid.

2 d. Melting and evaporation but not freezing.

3 a. Ice , water , water vapour.

4 This liquid appears on the outside of the glass due to the condensation of water vapour present in the atmospheric air on the cold surface of the glass.

5 b. Its mass will decrease and its volume will decrease.

Lesson 3

1
1. a. Element 2. b. carbon.
3. a. solid metals. 4. b. Carbon
5. d. mercury. 6. b. Bromine
7. b. Oxygen 8. d. (a),(b) and (c).
9. c. sulphur. 10. c. sulphur.
11. b. 12. c. Iron.
13. a. Bromine
14. c. malleability or ductility.
15. d. phosphorus. 16. a. phosphorus.
17. d. it is a bad conductor of heat and electricity.
18. c. is a good conductor of electricity.
19. c. jewels. 20. b. Iron
21. b. is malleable and ductile.
22. c. Carbon 23. c. aluminium.
24. d. copper. 25. c. copper.

2
1. (✗) Elements are ....
2. (✗) .... metals.
3. (✓) 4. (✓) 5. (✓)
6. (✗) .... except carbon which is a good conductor of electricity.
7. (✗) .... is a non-metallic element ....
8. (✓)
9. (✗) .... have high melting and boiling points, but non-metals have low melting and boiling points.
10. (✗) .... at different temperatures.
11. (✗) .... mercury. 12. (✓)
13. (✗) .... is a liquid metal, while .... is a liquid non-metal.
14. (✗) Carbon is ....
15. (✓) 16. (✗) Iron ....
17. (✗) .... of a non-metallic element ....
18. (✗) .... , while copper ....

3
1. Element. 2. Metals
3. Non-metals. 4. Non-metals.
5. Metals. 6. Non-metals.
7. Non-metals. 8. Bromine.
9. Mercury. 10. Carbon.
11. Iron. 12. Aluminium.
13. Carbon. 14. Metals.
15. Non-metals. 16. Copper.
17. Gold or silver. 18. Aluminium.

4
1. Element 2. metals – non-metals.
3. mercury – liquid. 4. sulphur – nitrogen
5. Bromine – mercury 6. metal – non-metal.
7. metals – non-metals 8. metals – non-metals.
9. good – non-metals – carbon.
10. Copper – a bad conductor of electricity.
11. bad – good
12. carbon – electricity.
13. heat – electricity. 14. high – low
15. lower 16. Metals – non-metals
17. high – non-metals 18. carbon
19. aluminium. 20. gold – silver – iron

21. electric wires – statues – metallic coins.
22. Iron – carbon 23. Aluminium – copper.

5
1. gold 2. iron
3. carbon. 4. elements.
5. metals. 6. non-metals.

6
1. Because they are shiny, can be bent or hammered, have high melting and boiling points, and are good conductors of heat and electricity.
2. Because it is not shiny, can't be bent or hammered, has low melting and boiling points, and is a bad conductor of heat and electricity.
3. Because they can be shaped as they are metals.
4. Because it is a good conductor of electricity and can be pulled into wires as it is a metal.
5. Because they are metals.
6. Because aluminium is a metal, but coal (carbon) is a non-metal.
7. Because aluminium is a good conductor of heat and can be shaped as it is a metal.
8. Because it is a good conductor of electricity.
9. Because aluminium is shiny, can be bent or hammered, has high melting and boiling points and is a good conductor of heat and electricity, but bromine is not.
10. Because the nail is made of iron which conducts electricity as it is a metal.
11. Because iron is a metal, but sulphur is a non-metal.
12. Because copper is a metal that can be bent or hammered to form sheets.
13. Because metals can be bent or hammered to form sheets, but non-metals cannot.
14. Because iron is a metal that can be bent or hammered to form sheets and it is a good conductor of electricity.

7
1. The electric lamp lights, because graphite (carbon) is a good conductor of electricity.
2. The wax does not melt, because sulphur is a bad conductor of heat.
3. The sulphur crystals melt before the piece of copper.
4. The wax melts, because iron is a good conductor of heat as it is a metal.

8 Look at the main book on page (55).

9
1. In making bridges and street lights.
2. In making cooking pans and doorknobs.
3. In making jewellery.
4. In making electric wires.
5. In making the positive poles (electrodes) of batteries.

10
– The first method is the metallic luster :
If the element is shiny, so it is a metal, but if it is not shiny, so it is a non-metal.
– The second method is hammering :
If the element isn't broken, so it is a metal, but if it is broken, so it is a non-metal.

11 In figures (B) and (C) the lamp will light, because copper and coal (carbon) are good conductors of electricity, but the lamp in fig. (A) will not light, because sulphur is a bad conductor of electricity.

12
1. – Aluminium.
– It is used in the manufacture of cooking pans, foil paper and some doorknobs.
2. – Gold.
– It is used in making jewellery.

Timss Questions

1 c. Material (1) is aluminium and material (2) is carbon.

2 a. Iron nail.

3 Amir can observe the metallic luster of this solid substance, where :
- If it has metallic luster, so it is a metal.
- If it doesn't have metallic luster, so it is a non-metal

4
- Connect the two ends of the graphite rod of each pencil to the electric circuit.
- If the lamp lights, so the graphite rod is not broken.
- If the lamp does not light, so the graphite rod is broken.

5
a. The pin will fall down.
b. Copper (metal) is a good conductor of heat.

Lesson 4

1
1. a. two
2. c. fermentation of food.
3. a. Dissolving of sugar in water
4. b. melting of wax.
5. c. a physical change.
6. b. Physical change
7. b. a physical change to water.
8. a. Burning of a candle
9. b. formation of table salt solution.
10. a. The chemical change 11. c. chemical
12. b. a chemical change. 13. b. Burning it.
14. a. adding yeast to doughs.

2
1. (✗) .... is a physical change.
2. (✓)
3. (✗) .... without producing a new substance.
4. (✗) .... , while rusting of iron ....
5. (✗) .... is a physical change.
6. (✗) Rusting of iron changes ....
7. (✓)
8. (✗) .... , while its dissolving in water ....
9. (✓)
10. (✗) .... as a physical change.
11. (✗) .... is a physical change.
12. (✗) .... , while production of yoghurt from milk ....
13. (✓)
14. (✗) .... a chemical change.
15. (✗) .... a chemical change.
16. (✗) Physical change ....
17. (✗) .... a physical change.

3
1. A chemical change. 2. A physical change.
3. A chemical change. 4. A chemical change.
5. A physical change. 6. Rusting of iron.
7. A chemical change. 8. A chemical change.
9. A physical change.

4
1. physical 2. physical
3. physical 4. physical
5. physical 6. heating – physical
7. physical
8. structure of the substance producing a new substance or substances with different properties.
9. physical – chemical
10. physical – chemical 11. chemical
12. physical – chemical 13. chemical
14. oxygen gas – water. 15. chemical
16. substance – properties.
17. physical – chemical 18. chemical
19. physical – chemical 20. chemical
21. chemical
22. a chemical – chemical

5
1. It is a change in the appearance or the shape of matter without any change in its properties.
2. It is a change in the structure and the shape of the substance producing a new substance or new substances with different properties.

6
1. Because melting of ice causes a change in the shape of ice, without any change in its structure.
2. Because melting of wax causes a change in the shape of wax, without any change in its structure.
3. Because it causes a change in the appearance (shape) of water without any change in its structure.
4. Because it causes a change in the shape and structure of paper producing a new substance (black ash) with new properties.
5. Because burning of wood causes a change in the shape and structure of wood producing a new substance with new properties.
6. Due to the chemical change that is produced from the reaction between iron and both water and oxygen.
7. Because burning of sugar is a chemical change that changes the structure of sugar producing a new substance with new properties.
8. Because fermentation of milk causes a change in the structure of milk and producing a new substance with new properties.
9. Because burning of sugar causes a change in the structure of sugar producing a new substance with new properties.
10. Because it causes a change in the shape and structure of pastry producing a new substance with new properties.
11. Because this is a physical change, so the shape of sugar changes without any change in its structure.

12. Because burning of a piece of paper is a chemical change that produces a new substance (black substance) with new properties.
13. Because formation of clouds and rains change the shape of water without any change in its structure.
14. Because this causes a change in the structure and shape of bread producing a new substance with new properties.
15. Because it causes a change in the structure of iron producing a new substance with new properties.

7

Physical change	Chemical change
– Ending with the same substance that we started with. – A change in the appearance of the substance. – No formation of a new substance.	– New properties appear. – A new substance that differs from the original one is formed. – A change in the structure of the substance.

8
1. Drops of water are formed on the cold glass sheet due to the condensation of water vapour.
2. A chemical change takes place and black ash is formed.
3. Swelling of doughs occurs, because a chemical change takes place.
4. Formation of a brittle brown layer (iron rusting) on the iron wire, because the exposing of iron wire to oxygen and water causes a change in the shape and structure of iron producing a new substance with new properties.
5. A chemical change takes place and a brown substance is formed.
6. The iron nail rusts, where a brittle brown layer is formed on the iron nail.
7. A physical change takes place where the water evaporates and the salt remains in the dish.

9
1. A brittle brown layer is formed.
2. A chemical change.

10
– 1 , 4 , 5 , 9 , 13 are chemical changes, because they cause a change in the structure of matter producing a new substance or new substances with new properties.

– 2 , 3 , 6 , 7 , 8 , 10 , 11 , 12 are physical changes, because they cause a change in the appearance of matter without any change in its structure.

11
1. Look at the main book on page (76).
2.

Points of comparison	Burning of a candle	Melting of wax
1. Change in the appearance of the substance :	Takes place.	Takes place.
2. Change in the structure of the substance :	Takes place.	Doesn't take place.
3. Type of change :	Chemical change.	Physical change.

3.

Points of comparison	Dissolving of sugar	Burning of sugar
1. Change in the shape of the substance :	Takes place.	Takes place.
2. Change in the structure of the substance :	Doesn't take place.	Takes place.
3. Type of change :	Physical change.	Chemical change.

12
1. gaseous – liquid 2. solid – liquid
3. A physical change.

Timss Questions

1 When sodium bicarbonate is added to vinegar, they produce carbon dioxide gas that causes the ballon to inflate.

2
- The change that occurs to the half spoon of sugar when it is put in water is a physical change.
- The change that occurs to the half spoon of sugar that closed to the flame is a chemical change.

3
(a) A chemical change.
(b) Rusting – oxygen – water.

4
(a) Evaporation process.
(b) Condensation process.
(c) Physical change.
(d) Table salt.

Unit Two

Lesson 1

1
1. a. are shiny bodies. 2. c. radiates light.
3. d. (a) , (b) and (c). 4. c. The Sun
5. b. the Sun. 6. c. eight.
7. b. Planets
8. c. Mercury – Venus – Earth – Mars – Jupiter – Saturn – Uranus – Neptune.
9. a. Venus. 10. a. planet.
11. c. Venus 12. b. Mercury.
13. b. Neptune. 14. c. Neptune.
15. a. Mars 16. d. Venus
17. c. Earth 18. a. Saturn.
19. a. Saturn and Neptune. 20. d. Jupiter
21. c. Jupiter and Sun. 22. a. Mercury.
23. c. Venus.
24. d. coloured rings. 25. a. Uranus.
26. a. Neptune. 27. c. Mars.
28. c. The moon
29. d. it reflects sunlight.

2
(a) 1. e 2. f 3. b
4. d 5. c 6. a
(b) 1. d 2. f 3. b
4. c 5. a

3
1. (✓) 2. (✓)
3. (✗) The Sun is a star ....
4. (✗) .... heat and light.
5. (✗) .... meteors, eight planets and asteroids.
6. (✗) .... is the Sun.
7. (✓) 8. (✓) 9. (✓)
10. (✓) 11. (✗) .... is Jupiter.
12. (✓) 13. (✗) .... is the Earth.
14. (✓)
15. (✗) .... farthest one is Neptune.
16. (✗) .... is Jupiter.
17. (✗) The Sun is .... , while Jupiter ....
18 (✗) Venus is .... , while Mars is ....
19. (✓) 20. (✗) The Sun is ....
21. (✓)

4
1. The Sun. 2. The Sun. 3. Stars.
4. Stars. 5. The Sun. 6. The Sun.
7. Planets. 8. Mercury. 9. Planets.

10. Mercury. 11. The Sun. 12. The Earth.
13. Uranus. 14. Neptune. 15. Saturn.
16. Saturn. 17. Mars. 18. Venus.
19. Neptune. 20. The Earth planet.
21. The moon. 22. Moons. 23. Moons.

5
1. stars. 2. The Sun.
3. light - heat.
4. the Sun – eight planets – meteoroids
5. The Sun 6. The Sun – eight planets
7. dark 8. Stars – planets
9. planets. 10. star – planet.
11. nearest 12. Mercury – Venus.
13. Venus – Mars. 14. planets – star.
15. Mercury – Neptune 16. Mars.
17. Jupiter – Mercury 18. fifth – third
19. Jupiter – the Sun 20. Venus
21. Neptune – cold 22. Saturn – Earth
23. Venus – Mars 24. the red – the blue
25. Mercury – Neptune. 26. the Sun – planets.
27. planets – moons. 28. The Moon – sunlight.

6
1. Because they are very distant from us.
2. Because it radiates heat and light.
3. Because the Sun is a lightning body that emits light and heat, while the Earth is a dark body that revolves around the Sun.
4. Because the Sun is nearer to us than the other stars.
5. Because both of them are dark bodies.
6. Because the moon is a dark body that reflects the sunlight falling on its surface.
7. Because it is a dark body that revolves around the Sun in a fixed orbit.
8. Because it reflects the sunlight falling on its surface.
9. Because it is very distant from the Sun, so the Sun's heat doesn't reach it.

7 1.

A star	A planet
1. It is a shiny body.	1. It is a dark body.
2. It radiates heat and light.	2. It doesn't radiate heat or light.
3. It rotates in the space.	3. It rotates in the space around the Sun.
Ex.: The Sun.	Ex.: The Earth.



2.

The Sun	Mars
– It is a star.	– It is a planet.
– It emits heat and light.	– It doesn't emit heat or light.
– It rotates in the space.	– It revolves around the Sun.

3.

The Earth	The moon
1. It is a planet.	– It is a follower of the Earth.
2. It doesn't emit heat or light.	– It reflects sunlight falling on it.
3. It revolves around the Sun.	– It revolves around the Earth.

8 1. Venus – Earth – Mars – Saturn – Uranus – Neptune.
2. Mercury – Venus – Saturn – Uranus.
3. Venus – Earth – Jupiter – Saturn.

9 1. Venus – Earth – Saturn – Jupiter.
2. Mercury – Earth – Neptune – Saturn.
3. Mars – Venus – Uranus – Jupiter.

10 1. Mercury. 2. Venus. 3. Earth.
4. Mars. 5. Jupiter. 6. Saturn.
7. Uranus. 8. Neptune.

Timss Questions

1 1. d. (b) and (c).
2. d. All planets orbit the Sun, all moons orbit planets.

2 1. d. Mercury. 2. b. Mars. 3. c. Earth.

3 b. Earth
– Because it has the conditions that make life possible.

4 1. (6) – Mercury. 2. (5) – Mars.
3. (1) – Jupiter. 4. (6) – Mercury.
5. (2) – Saturn. 6. (3) – Neptune.
7. (3) – Neptune. 8. (4) – Earth.

Lesson 2

1 1. b. the Earth rotates around its axis.
2. c. rotation of the Earth around its axis.
3. b. Earth 4. c. inclined.
5. a. 24 hours.

6. c. the hours of day are not equal to the hours of night.
7. b. rotation of the Earth around its axis.
8. c. spring. 9. c. $365\frac{1}{4}$ days.
10. b. revolution of the Earth around the Sun.
11. c. night is longer than day.
12. a. length of day.
13. d. the length of night.

2 1. (✗) .... east. 2. (✓)
3. (✗) .... $365\frac{1}{4}$ days
4. (✗) .... of four seasons.
5. (✓)
6. (✗) .... = 24 hours – length of day.
7. (✗) In spring and autumn ....
8. (✗) .... around the Sun ....
9. (✗) .... of the Earth around the Sun.
10. (✗) .... = read of sunset – read of sunrise.
11. (✓)
12. (✗) .... , day is shorter than night.
13. (✓)

3 1. Sequence of day and night.
2. Length of day (day time).
3. Sequence of four seasons.
4. Summer. 5. Spring and autumn.
6. Winter.

4 1. east. 2. the Earth around its axis.
3. 24 hours.
4. rotation of Earth around itself.
5. inclined.
6. day and night hours.
7. read of sunset ⊖ read of sunrise.
8. 24 hours ⊖ length of day.
9. day – night. 10. $365\frac{1}{4}$ days – year.
11. the revolution of the Earth around the Sun.
12. summer – winter 13. spring – autumn
14. summer. 15. winter
16. $365\frac{1}{4}$ days – 24 hours.
17. day and night – four seasons
18. summer.

5 1. Due to the rotation of the Earth around its axis.
2. Due to the rotation of the Earth around its axis.
3. Because the Earth's axis is inclined.
4. Due to the rotation of the Earth around its axis.
5. Due to the revolution of the Earth around the Sun.
6. Because the apparent orbit of the Sun in summer is longer than the apparent orbit of the Sun in winter.

6 1. This part of the Earth is at daytime.
2. This part of the Earth is at night.
3. It causes the sequence of day and night.
4. Day and night will not be sequenced on the Earth.
5. The four seasons will not be sequenced on the Earth.
6. It causes the sequence of the four seasons.

7 1. • First day :
– Time of sunset = 5 : 43 + 12 : 00 = 17 : 43
– The hours of daytime = 17 : 43 − 6 : 43 = 11 : 00 hours.
• Second day :
– Time of sunset = 7 : 44 + 12 : 00 = 19 : 44
– The hours of daytime = 19 : 44 − 5 : 44 = 14 : 00 hours.
2. – First day is in winter season.
– Second day is in summer season.

8 1. The sequence of day and night.
2. The sequence of the four seasons.

9

Sequence of night and day	Sequence of four seasons
– It occurs due to the rotation of Earth around its axis once every 24 hours.	– It occurs due to the revolution of Earth around the Sun once every $365\frac{1}{4}$ days.

10 1. Summer. 2. Spring or autumn.
3. Winter.

11 1. Egypt lies in the northern hemisphere.
2. Egypt is at night. 3. winter

12 1. the Sun
2. day and night 3. four seasons

Timss Questions

1 1. Spring or Autumn. 2. Summer.
3. Winter.

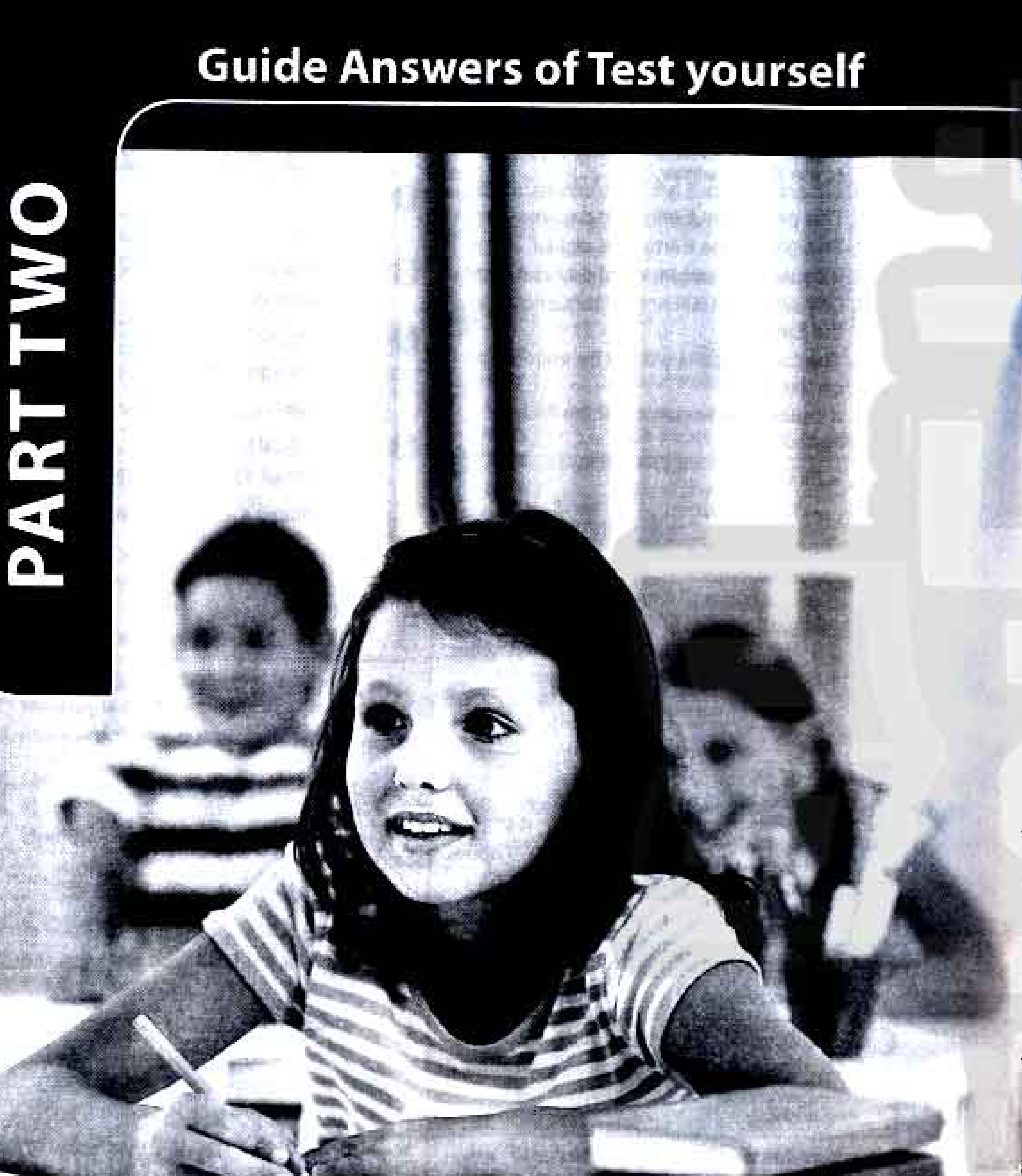
2 The number of day hours equals the number of night hours.

3 1. a. summer
2. d. the Earth rotates around its axis.
3. b. winter

4 1. 12 – equal to
2. more than 12 – longer than
3. less than 12 – shorter than

PART TWO

Guide Answers of Test yourself



Test yourself 1

1 (A) 1. gram. 2. metre – centimetre.
3. common balance – sensitive balance.
4. 1000 5. length – mass.

(B)

Mass	Volume
It is measured in gram, kilogram and ton.	It is measured in litre, millilitre, cubic metre and cubic centimetre.

2 (A) 1. It is used to measure the length of any object.
2. It is used to measure (estimate) the mass of some things as sugar and cheese.
3. It is used to measure the volumes of liquids or an irregular solid body.

(B) 1. c 2. a 3. d 4. b

3 1. Matter. 2. Graduated cylinder.
3. Sensitive balance. 4. Mass.
5. Graduated tape.

4 (A) It is the space that is occupied by the object.
(B) 1. (✓) 2. (✗) .... = 1000 cm^3
3. (✓) 4. (✓)

5 (A) Because it has a mass and occupies a certain space.
(B) 1. c. cm^3 2. c. gm.
3. a. Graduated cylinder

Test yourself 2

1 1. volume 2. different
3. length – width – height.
4. a graduated cylinder – a balance
5. length – mass.

2 (A) Because the body has a volume that is replaced by the volume of the spilled liquid.
(B) The volume of the box
= length × width × height
= 7 × 4 × 3 = 84 cm^3
(C) 1. cm^2 2. Litre.
3. Cubic centimetre.

3 1. a. graduated cylinder containing water.
2. c. 40 cm^3 3. c. 100
4. d. common balance
5. d. (a), (b) and (c).

4 (A) 1. (✓)
2. (✗) The graduated cylinder is .....
3. (✗) ..... of heavy objects as cars.
4. (✓).
(B) - Pour an amount of water in the measuring cylinder, then record the volume of water (V_1).
- Put the coin carefully in the cylinder and record the new volume of water (V_2).
- The volume of the coin = the difference between the two readings.
= $V_2 - V_1$ = ... cm^3

5 The volume of the four marbles = $V_2 - V_1$
= 120 – 100
= 20 cm^3
The volume of each marble = $\frac{20}{4}$ = 5 cm^3

Test yourself 3

1 1. liquid – gaseous. 2. kerosene – liquid
3. volumes – shapes. 4. gaseous – shape
5. gaseous 6. solid

2 (A) 1. Because iron has a definite shape and volume.
2. Because they don't have definite shapes or volumes.
3. Because it has a definite volume and an indefinite shape.
(B) 1. – Copper. – Liquids.
2. – Alcohol. – Gases.

3 1. b. Liquids 2. d. oil.
3. a. gaseous 4. d. (b) and (c).
5. d. oil.

4 (A) 1. (✗) 2. (✗) 3. (✓) 4. (✗)
(B) 1. b. No. 2. a. Yes.
3. Liquids have definite volumes, but they don't have definite shapes.

5 (A)

Point of comparison	Solids	Liquids	Gases
Shape :	Definite.	Indefinite.	Indefinite.

(B) 1. Liquids and gases. 2. Solids.
3. Liquid state. 4. Gaseous state.

Test yourself 4

❶ 1. liquid – solid 2. liquid – gaseous
3. cooling 4. liquid - solid
5. cold
6. condensation - freezing

❷ (A) 1. Because the volume of ice is bigger than the volume of water, so the bottle will explode.
2. Due to the condensation of water vapour that presents in air on the cold surfaces as plant leaves and cars.
3. Because gaseous substance takes the shape and the volume of its container.

(B) 1. evaporates 2. Melting
3. freezing 4. Freezing

❸ 1. Melting process.
2. Evaporation process.
3. Liquids. 4. Melting.
5. Liquids.

❹ (A) 1. b. condensation 2. c. Freezing
3. b. evaporation.

(B) 1. Water drops are formed on the outer surface of the cup.
2. The water changes into ice.

❺ (A) 1. Drops of water are formed on the outer surface of the cup.
2. Water vapour in air is condensed when it touches a cold surface.

(B) (1) Freezing (2) Evaporation
(3) cooling

Test yourself 5

❶ 1. Graduated cylinder – irregular
2. liquid – solid 3. amount
4. volume. 5. 200 – 2000
6. decreasing – liquid

❷ (A) 1. Ice melts and changes into water.
2. The water is spilled out from the cylinder, because the volume of the stone = the volume of the spilled water.

(B) 1. gases. 2. different
3. common balance

❸ (A) 1. Volume. 2. Freezing.
3. Solid state.

(B) 1. Because sugar is soluble in water.
2. Because when water changes into ice by cooling, the volume of ice is bigger than the volume of water, so the bottle will explode.

❹ 1. b. three 2. d. ml
3. c. matter. 4. d. measuring tape
5. b. an increase in temperature.

❺ (A) 1. b 2. c 3. a 4. d
(B) a. The volume of 6 marbles = $V_2 - V_1$
$= 90 - 60$
$= 30\ cm^3$
b. The volume of each marble = $30 \div 6$
$= 5\ cm^3$

Test yourself 6

❶ 1. high – low 2. heat.
3. aluminium – carbon. 4. solids – mercury
5. carbon.
6. a metal – a non-metal.

❷ 1. b. copper. 2. c. Sulphur.
3. b. mercury.
4. d. sulphur. 5. b. jewels.

❸ (A) 1. mercury 2. Carbon
3. Carbon

(B) 1. Because they are metals.
2. Because carbon is the only non-metal that is a good conductor of electricity.

❹ (A) 1. a. Gold and silver. b. Metals.
2. a. Carbon. b. Non-metal.
3. a. Copper. b. Metal.

(B) 1. The piece of wax melts quickly.
2. Metals are good conductors of heat.

❺ (A)

Points of comparison	Metals	Non-metals
1. Heat conduction :	They are good conductors of heat.	They are bad conductors of heat.
2. Melting point :	They have high melting point.	They have low melting point.
3. Examples :	Iron and copper.	Sulphur and carbon.

(B) 1. Non-metals. 2. Copper.

Test yourself 7

❶ 1. non-metal – metal.
2. heat – electricity.
3. non-metals – sulphur.
4. good – bad
5. a metal – a non-metal.

❷ (A) 1. Because aluminium is a good conductor of heat.
2. Because copper is a good conductor of electricity and can be bent or re-shaped as it is a metal.

(B) 1. (✗) 2. (✓) 3. (✗) 4. (✗) 5. (✓) 6. (✗)

❸ (A) 1. iron. 2. mercury. 3. bromine.
(B) 1. Element. 2. Metals. 3. Mercury.

❹ 1. They are used in making jewels.
2. It is used in making cooking pans.
3. It is used in making the positive pole of batteries.
4. It is used in making bridges, car chassis and lamp posts.
5. It is used in making electric wires.

❺ (A) 1. e 2. c 3. d 4. b
(B) 1. (a) Battery.
(b) Electric wire.
2. The lamp lights up.
3. Metals as iron are good conductors of electricity.

Test yourself 8

❶ 1. Aluminium – making electric wires.
2. gaseous – solid 3. mass – metre
4. dry cells – carbon. 5. liquid – bromine

❷ (A) 1. Because the nail is made up of iron which conducts electricity as it is a metal.
2. Because it doesn't have a definite shape or volume.
3. Because it can be bent or hammered to form sheets as it is a metal.

(B) The volume of the box
= length × width × height
$= 6 \times 3 \times 2 = 36\ cm^3$

❸ 1. a. a non-metal. 2. a. one state
3. d. kilometre. 4. b. Sulphur
5. c. oxygen.

❹ (A) 1. Water changes into water vapour then water vapour condenses on the cold glass sheet and changes into water droplets.
2. The sulphur crystals melt before the piece of iron.

(B) 1. Water. 2. cm^2.
3. Phosphorus.

❺ (A) 1. (✗) 2. (✓) 3. (✗) 4. (✗)
(B) 1. The electric lamp lights.
2. Coal (carbon) is a good conductor of electricity although it is a non-metal.

Test yourself 9

❶ 1. a chemical
2. chemical
3. physical
4. physical – chemical
5. physical – chemical
6. physical – chemical
7. a physical

❷ (A) 1. Because it causes a change in the shape and structure of bread producing a new substance with new properties.
2. Because it causes a change in the shape of ice only without any change in its structure.

(B) 1. physical change.
2. chemical change.
3. physical change
4. a change in the shape

❸ • **Physical changes are :** Grinding of sugar – Condensation of water vapour – Melting of wax.

• **The reason :** Because all of these changes cause a change in the shape or appearance of matter without any change in its structure.

• **Chemical changes are :** Sugar fermentation – Burning of coal – Iron rusting – Changing of milk into yoghurt – Charring of bread.

• **The reason :** Because all of these changes cause a change in the shape and structure of matter.

❹ 1. c. Melting of ice
2. d. (a) and (b).
3. a. a chemical change.
4. c. (a) and (b).
5. c. dissolving of sugar in water.

❺ (A) 1. Physical change.
2. Chemical change.

(B) 1. A change in the appearance or the shape of the sugar cube and change in its structure (properties).
2. A chemical change, because it changes the shape and structure of the sugar cube producing a new substance or new substances with new properties.

(C) It means that the burning of wood causes a change in the shape and structure of wood producing a new substance with new properties.

General Exercise of the school book on unit 1

❶ 1. a. 20
2. b. the liquid state into the gaseous one.
3. b. condenses.
4. b. a good conductor of electricity.
5. c. malleability or ductility.
6. b. Melting of a candle.
7. b. melting of iron.
8. c. Burning it.

❷ 1. physical
2. water vapour.
3. liquid – solid
4. element.
5. metals – non-metals.
6. metals – non-metals
7. carbon – electricity.
8. physical – chemical
9. physical – chemical
10. chemical
11. a chemical – chemical

❸ 1. A physical change takes place and water changes into ice, because water changes into ice by cooling.
2. The water vapour condenses on the cold surface and changes into water droplets, because water vapour changes into water by cooling.
3. Formation of a brittle brown layer (iron rusting) on the iron wire, because the exposing of iron wire to oxygen and water causes a change in the shape and structure of iron producing a new substance with new properties.
4. A physical change takes place and ice changes into water, because ice changes into water by heating.
5. A physical change takes place where the water evaporates and the salt remains in the dish, because water changes into water vapour by heating.
6. A chemical change takes place and a brown substance is formed, because heating sugar causes a change in the shape and structure of it producing a new substance with new properties.

❹ 1. gaseous – liquid 2. solid – liquid
3. A physical change.

❺ (1) Melting (2) Evaporation
(3) Freezing (4) Condensation

❻ 1. A brittle layer is formed.
2. A chemical change.

Model Exam (1) on unit 1

❶ 1. gram – kilogram – ton.
2. freezing

3. bridges – car chassis – lamp posts.
4. physical – chemical
5. condensation

❷ 1. Because it occupies a certain space.
2. Because sugar has a definite shape and volume, while mercury has a definite volume and an indefinite shape.
3. Because they can be bent or re-shaped as they are metals.
4. Because burning a piece of sugar is a chemical change as the shape and structure of sugar change producing a new substance with new properties.
5. Because water changes into ice by cooling.

❸ (A) 1. (✗) 2. (✗) 3. (✗) 4. (✓)

(B) 1. Graduated cylinder.
2. Aluminium.
3. Chemical change.

❹ 1. c. 120 2. b. freezing.
3. c. bromine. 4. b. chemical change.
5. d. high

❺ (A) 1. The amount of water decreases as it evaporates and changes into water vapour.
2. The iron nail rusts, where a brittle brown layer is formed on the nail.

(B) 1. b 2. c 3. e 4. a

[illegible] 1

❶ 1. metal – good
2. a mass – a volume.
3. shape – liquid state.
4. oxygen – water.
5. metals – non-metals.

❷ (A) 1. It is used in measuring the mass of small objects as jewelleries.
2. It is used in the manufacture of the positive poles (electrodes) of dry batteries.
3. It is used in measuring the length or the dimensions of a regular solid body.

(B) 1. (✗) 2. (✗) 3. (✗) 4. (✓)

❸ (A) 1. Because it doesn't have a definite shape or volume.
2. Because it causes a change in the shape of wax without any change in its structure.

(B) 1. Iron. 2. Condensation.
3. gram.

❹ 1. a. Physical change 2. b. 300
3. a. melting then cooling 4. d. copper.
5. c. evaporation

❺ (A) 1. chemical change.
2. cooling. 3. Common balance
4. Gold

(B) - The volume of the 5 marbles = the volume of the spilled water = 15 cm^3
- The volume of each marble = 15 ÷ 5 = 3 cm^3

Test yourself 10

❶ 1. dark – orbits.
2. a medium – solar system.
3. Venus – Mars.
4. Mercury – Neptune.
5. eight.

❷ (A) 1. Because the Sun is nearer to us than the other stars.
2. Because it reflects the sunlight falling on its surface.
3. Because it is a dark body that revolves around the Sun in fixed orbit.

(B) Mercury – Venus – Earth – Mars – Jupiter – Saturn – Uranus – Neptune.

❸ 1. (✗) .... Sun, the eight planets, comets, moons, meteors, meteorites and asteroids.
2. (✗) .... , while the Sun is a star.
3. (✗) Neptune ....
4. (✗) Venus ....
5. (✗) .... Jupiter.

❹ 1. d. Jupiter and Saturn.
2. d. (a) , (b) and (c). 3. c. coloured rings.
4. a. Mars 5. b. Jupiter.

❺ (A) 1. Planets. 2. The Sun. 3. Mercury.
(B) 1. b 2. d 3. a 4. c

Test yourself 11

1. 1. Sun – moons
   2. the red planet – blue planet.
   3. sixth – coloured rings.
   4. Uranus – seventh
   5. star – planet.

2. (A) 1. Because it reflects the sunlight falling on its surface.
   2. The Sun is a star, because it is a self-shining body that emits heat and light, but the Earth is a planet, because it is a dark body that revolves around the Sun and doesn't emit light.
   3. Because they are very far from us.

   (B) 1. e 2. a 3. b 4. d

3. 1. (✗) .... is a follower of the Earth that revolves around it.
   2. (✗) Jupiter is ....
   3. (✗) .... the red planet.
   4. (✗) .... eight planets ....
   5. (✓)

4. 1. Saturn. 2. Mars. 3. The moon.
   4. The solar system. 5. The Sun.

5. (A) 1. Jupiter. 2. blue
   (B) 1. Sun. 2. Earth. 3. Moon.

Test yourself 12

1. 1. autumn – spring
   2. 24 hours – $365\frac{1}{4}$ days.
   3. day – night.
   4. summer season – winter season.
   5. the Earth – the Sun.

2. (A) 1. The number of hours of day equals the number of hours of night.
   2. The sequence of day and night will occur.
   3. The sequence of the four seasons will occur.

   (B) 1. (✓) 2. (✗) 3. (✓) 4. (✗)

3. 1. a. summer 2. d. $365\frac{1}{4}$ days.
   3. a. summer 4. c. spring.
   5. c. Earth around the Sun.

4. (A) 1. Due to the rotation of the Earth around itself.
   2. Due to the rotation of the Earth around itself.
   3. Because the apparent orbit of the Sun in summer is longer than the apparent orbit of the Sun in winter.

   (B) 1. The sequence of day and night.
   2. The sequence of four seasons.

5. (A) 1. summer – day – night.
   2. winter – night – day.

   (B)

Rotation of Earth around its axis	Revolution of Earth around the Sun.
- It occurs every 24 hours (day).	- It occurs every $365\frac{1}{4}$ days.
- It causes the sequence of day and night.	- It causes the sequence of four seasons.

2

1. 1. shining – different – dark
   2. 8 – the Sun
   3. Mercury – Neptune – Jupiter.
   4. Earth – Earth

2. 1. Planets.
   2. The moon.

3. 1. The sequence of day and night.
   2. The sequence of the four seasons.

4.

A star	A planet
1. It is a shiny body.	1. It is a dark body.
2. It radiates heat and light.	2. It doesn't radiate heat or light.
3. It rotates in the space.	3. It revolves in the space around the Sun.
Ex. : The Sun	Ex. : The Earth.



Model Exam (1) on unit 2

1. 1. The Sun – Mercury
   2. heat – light.
   3. the four seasons – the Earth
   4. summer.
   5. Saturn – Uranus – Neptune.

2. (A) 1. Sequence of day and night.
   2. The Earth.
   3. Mars.

   (B) 1. Because the moon is a dark body that reflects the sunlight falling on it.
   2. Due to the rotation of the Earth around its axis once every 24 hours.

3. 1. c. planets 2. a. longer than
   3. d. Venus. 4. b. inclined.
   5. d. (b) and (c).

4. 1. (✗) .... every 24 hours.
   2. (✗) .... due to rotation of the Earth around its axis.
   3. (✗) .... is Mercury.
   4. (✓) 5. (✓)

5. (A)

The Sun	The moon
- It is a shiny body. - It emits heat and light. - It rotates in the space.	- It is a dark body. - It reflects sunlight falling on it. - It revolves in the space around the Earth.

   (B) 1. Mercury – Mars – Earth – Neptune.
   2. Venus – Earth – Uranus – Jupiter.



Model Exam (2) on unit 2

1. 1. The Sun – eight planets
   2. Venus – Mars 3. spring – autumn
   4. summer – winter
   5. day and night - four seasons.

2. 1. Because the Sun is a lightning body that emits light and heat, while the Earth is a dark body that revolves around the Sun.
   2. Because both of them are dark bodies.
   3. Due to the revolution of the Earth around the Sun.
   4. Due to the rotation of the Earth around its axis.
   5. Because its rocks contain iron.

3. (A) 1. (✗) 2. (✗) 3. (✗)
   4. (✗) 5. (✓)

   (B) Mercury - Venus - Earth - Mars - Jupiter - Saturn - Uranus - Neptune.

4. (A) 1. It causes the sequence of day and night.
   2. This part of the Earth is at day time.

   (B) 1. Saturn.
   2. Winter.
   3. Moons.

5. 1. b. the Sun.
   2. b. Neptune.
   3. c. spring.
   4. c. eight.
   5. c. Neptune and Jupiter.

PART THREE

Guide Answers of Final Exams 2018



Cairo Governorate

1 New Cairo Zone — Manor House International School

1 1. Mass
2. volumes of solids and liquids.
3. definite - shapes.
4. gaseous - liquid
5. bad - carbon.
6. mercury - liquid metal.
7. physical - chemical
8. star - planet.
9. the Earth - itself.

2 (A) 1. Because the Sun is a lightning celestial body, while the Earth is a dark celestial body that revolves around the Sun.
2. Because it causes a change in the shape of ice without any change in its structure.
3. Because this causes a change in the shape and structure of milk producing a new substance with new properties.
4. Because copper and aluminium are good conductors of electricity and can be bent or re-shaped as they are metals.

(B) 1. The sequence of day and night.
2. Melting.
3. The Sun.

3 (A) 1. c. is at daytime.
2. b. Jupiter and Saturn.
3. d. Liquids and gases
4. d. heating or cooling.
5. a. Bromine

(B) 1. It is the change in the appearance (shape) of matter without any change in its structure (properties).
2. It is the change of matter from the solid state to the liquid state by heating.
3. They are lightning (self-shining) celestial bodies that appear in the sky at night and have different sizes.

4 (A) 1. (✓)
2. (✗) ... by heating.
3. (✗) Non-metals exist ...
4. (✗) Mars is ...

(B)

Solids	Liquids	Gases
Table salt	Oil	Air
Sugar	Kerosene	Oxygen
Iron pieces	Benzene	Water vapour
Ice	Water	
	Bromine	

(C) The volume of the mobile phone
= length × width × height
= 6 × 3 × 2 = 36 cm^3.

2 Nasr East Directorate — Manaret Heliopolis School

1 1. a mass - a volume.
2. the mass of large objects - the length of a body.
3. liquid - gaseous.
4. $365\frac{1}{4}$ days - 24 hours.
5. chemical - physical
6. sulphur - copper
7. Mercury - Neptune.
8. the red planet - the blue

2 1. b. graduated cylinder.
2. c. inclined.
3. a. gaseous
4. b. Sun.
5. b. aluminium.
6. c. 8
7. c. evaporation.
8. a. 20 cm^3.

3 1. Planets.
2. Physical change.
3. Volume.
4. Freezing.
5. Stars.
6. Element.
7. Solid state.
8. Moons.

4 (A) 1. (✓)
2. (✗)
3. (✓)
4. (✓)
5. (✗)
6. (✓)

(B) 1. Because water has a definite volume and an indefinite shape.
2. Because they are very far from us.

3 Shoubra Directorate — Good Shepherd Sister's L.S. Al Attar

1 1. large masses.
2. physical - chemical
3. Venus - Mars.
4. $365\frac{1}{4}$
5. ice
6. Element

2 (A) 1. a. copper. 2. c. cm^3.
3. b. Carbon 4. a. Uranus.
5. c. bromine. 6. c. spring.

(B) The volume of the brick
= length × width × height
= 5 × 3 × 1 = 15 cm^3.

3 (A) 1. Stars. 2. Evaporation.
3. Mars. 4. Rusting of iron.
5. Mass.

(B) 1. Because it has a mass and a volume.
2. Because they are very far from us.
3. Due to the rotation of the Earth around its axis.

4 (A) 1. star 2. three
3. Venus 4. low
5. Gases 6. volume.

(B) Venus - Jupiter - Uranus - Neptune.

4 El Zietoun Educational Zone Gomhouria Language School

1 (A) 1. large masses - large lengths.
2. metals - non-metals
3. Mercury - Neptune.
4. autumn - spring.

(B) The volume = length × width × height
= 4 × 3 × 2 = 24 cm^3.

(C) 1. Chemical change.
2. Physical change.

2 (A) 1. Planets. 2. Winter.
3. Matter. 4. Evaporation.

(B) 1. Used to measure the volumes of liquids and irregular solid bodies.
2. Used to measure the mass of large objects as cheese and fruits.
3. Used in making bridges, car chassis, doors and lamp posts.
4. Used to measure the length of a body.

3 (A) 1. Because it is a good conductor of electricity.
2. Because it reflects the sunlight falling on its surface.
3. Due to the revolution of the Earth around the Sun.
4. Because it has a mass and a volume.

(B) 1. Water vapour condenses on the outer surface of the glass forming drops of water.
2. It causes the sequence of day and night.

(C) 1. It is the change of matter from the liquid state to the solid state by cooling.
2. It is the amount of matter that the object contains.

4 (A) 1. b. Sun. 2. c. inclined.
3. a. melting. 4. a. alcohol.
5. a. mercury. 6. c. Venus.

(B) 1. three 2. Mars planet
3. Gases 4. length.

5 Western Nasr City Educational Zone El-Malek Fahad Language School

1 (A) 1. volumes of liquids.
2. Carbon 3. Sun
4. gaseous 5. Mars

(B) 1. Because aluminium is a good conductor of heat and can be bent as it is a metal.
2. Because it has a mass and a volume.
3. Due to the rotation of the Earth around its axis.

2 (A) 1. (✓) 2. (×) 3. (✓)
4. (✓) 5. (×)

(B) 1. Sulphur. 2. Kilogram.
3. Carbon dioxide.

3 (A) 1. Melting. 2. Bromine.
3. Mass. 4. Jupiter.
5. Liquid state.

(B) 1. Sun 2. Iron 3. mass.

4 (A) 1. a. autumn. 2. c. Neptune.
3. a. condensation 4. a. Burning
5. c. eight. 6. b. Earth

(B) The volume = length × width × height
= 5 × 3 × 1 = 15 cm^3.

6 Maadi Educational Directorate Science Inspectorate

1 1. centimetre - metre.
2. physical - chemical
3. mercury - bromine.
4. solids - liquids

2 (A) 1. c. volume 2. c. Sulphur
3. c. eight 4. a. $365\frac{1}{4}$

(B) 1. It is the amount of matter that the object contains.
2. It is the change of matter from the solid state to the liquid state by heating.

3 (A) 1. Gram. 2. Physical change.
3. Planets. 4. Matter.

(B) 1. Due to the rotation of the Earth around its axis.
2. Because it is a good conductor of electricity.

4 (A) 1. (✓) 2. (×) 3. (×) 4. (✓)

(B) 1. c 2. a 3. e 4. b

Giza Governorate

7 6 October Directorate Smart Vision School

1 1. a. 24 hours. 2. c. Jupiter.
3. b. 500 4. a. mass.
5. c. Gold 6. a. solid
7. c. Melting of wax 8. b. inclined.

2 (A) 1. Because they are very far from us.
2. Due to the revolution of the Earth around the Sun.
3. Because it is a good conductor of electricity.

(B) 1. (✓) 2. (×) 3. (×) 4. (×) 5. (×)

3 (A) 1. Volume. 2. Element.
3. Chemical change.
4. Melting. 5. The Sun.

(B) 1. Sun. 2. Pen.
3. Sulphur.

4 (A) 1. d 2. c 3. e 4. a 5. f

(B)

Points of comparison	Metals	Non-metals
1. Heat conduction :	They are good conductors of heat.	They are bad conductors of heat.
2. Melting point :	They have high melting point.	They have low melting point.
3. Examples :	Iron - copper.	Sulphur - carbon.

8 Omrania Zone Moharram Islamic Language School

1 (A) 1. Condensation. 2. The Sun.
3. Volume. 4. Chemical change.

(B)

Physical changes	Chemical changes
- Grinding of sugar. - Melting of ice.	- Burning of paper. - Rusting of iron.

2 (A) 1. c. mercury. 2. d. winter
3. b. graduated cylinder.
4. b. Saturn.

(B) 1. Sun. 2. Metre.
3. Sulphur. 4. Wood.

3 1. liquid - solid 2. 200 - 2000
3. iron - copper. 4. Mars - Uranus.

4 (A) 1. (✓) 2. (✓) 3. (×) 4. (✓) 5. (×)

(B) 1. Due to the revolution of the Earth around the Sun.
2. Because aluminium is a good conductor of heat and can be bent as it is a metal.
3. Because it reflects the sunlight falling on its surface.

9 Boulak El Dakrour Directorate Dar El-Hanan Language School

1 (A) 1. metals – non-metals
2. physical – chemical

(B) 1. b 2. a 3. d 4. c

2 (A) 1. Gases 2. length.
3. autumn and spring 4. Rusting

(B) 1. Because copper is a good conductor of electricity and can be bent or re-shaped as it is a metal.
2. Due to the revolution of the Earth around the Sun.

3 (A)

Dissolving of sugar	Burning of sugar
- Physical change.	- Chemical change.

The Sun	Mars
- It is a shiny body (star).	- It is a dark body (planet).

(B) Venus - Earth - Mars - Saturn - Uranus - Neptune.

4 (A) 1. The Earth planet. 2. Matter.
3. Sensitive balance. 4. The Sun.

(B) The volume of the marble = $V_2 - V_1$
$= 70 - 50$
$= 20\ cm^3$

10 Experimental Directorate Official Language Schools

1 1. Mars 2. solid - liquid
3. Mercury - Neptune 4. Mass
5. inclined. 6. physical

2 (A) 1. Non-metals. 2. Moons.
3. Common balance. 4. Carbon.
5. Matter. 6. Element.

(B) 1. Because aluminium is a good conductor of heat and can be bent as it is a metal.
2. Due to the revolution of the Earth around the Sun.

3 (A) 1. d 2. a 3. b 4. c

(B) 1. (✗) 2. (✗) 3. (✓) 4. (✗)

4 (A) 1. c. Earth. 2. b. mass.
3. c. Mercury 4. c. Melting
5. a. winter

(B) 1. one 2. Gases
3. physical change

11 Kerdasa Educational Zone

1 1. liquid - gaseous.
2. amount 3. Mercury.
4. metals - non-metals
5. Solids - liquids 6. Neptune.

2 (A) 1. Matter. 2. The moon.
3. Metals. 4. Venus.

(B) 1. Because aluminium is a good conductor of heat and can be bent as it is a metal.
2. Due to the rotation of the Earth around its axis.

3 (A) 1. b. cm^3 2. c. melting.
3. b. 24
4. a. physical changes.

(B) 1. Water freezes and changes into ice.
2. It causes the sequence of the four seasons.

4 (A) 1. (✗) 2. (✗) 3. (✓) 4. (✓)

(B) 1. chemical 2. physical
3. physical 4. physical

Alexandria Governorate

12 East Zone Directorate Taymour English School

1 (A) 1. graduated cylinder.
2. metals - carbon
3. 24 4. cooling.

(B) 1. Due to the rotation of the Earth around its axis.
2. Because the Sun is nearer to us than the other stars.

2 (A) 1. The Sun. 2. Melting.
3. Moons. 4. Mars.
5. Gaseous state.

(B) 1. Copper. 2. Iron.
3. Gold.

3 (A) 1. c. Production of yoghurt from milk
2. b. winter 3. c. Neptune.
4. b. liquid into gas.
5. d. Oil, water and vinegar

(B) 1. Ice melts and changes into water.
2. The nail rusts, where a brittle brown layer is formed on the nail.

4 (A) 1. (✗) ... except mercury ...
2. (✗) ... make multiplication.
3. (✗) ... gaseous matter.
4. (✓)
5. (✗) ... to the Sun.

(B) Heating doesn't melt the piece of aluminium, while the piece of sulphur melts by heating.

13 Ibrahimieh Directorate Franciscan Sisters School

1 (A) 1. large masses - large lengths.
2. Jupiter - Mercury
3. volume.
4. physical - chemical
5. The Sun

(B) 1. Due to the rotation of the Earth around its axis once every 24 hours.
2. Because it is a good conductor of electricity.
3. Due to the condensation of water vapour on the cover of cooking pans.
4. Because it reflects the sunlight falling on its surface.

2 (A) The volume of the three marbles
$= V_2 - V_1$
$= 40 - 10 = 30\ cm^3$
The volume of each marble = 30 ÷ 3
$= 10\ cm^3$

(B) 1. Sensitive balance. 2. Volume.
3. Melting. 4. Copper.

(C) 1. Gases
2. Condensation
3. autumn and spring seasons
4. graduated cylinder.

3 (A) 1. A physical change takes place, because water freezes and changes into ice.
2. The lamp will go out, because sulphur is a bad conductor of electricity as it is a non-metal.
3. A chemical change takes place and a brown substance is formed, because heating causes a change in the shape and structure of sugar.
4. Swelling of doughs occurs, because a chemical change takes place.

(B) 1. (✗) ... gaseous state.
2. (✗) ... red planet.
3. (✗) ... inclined.
4. (✗) ... of liquids.

4 (A) 1.

Physical change	Chemical change
Change in the structure of the substance doesn't take place.	Change in the structure of the substance takes place.

2.

Stars	Planets
They are shiny bodies.	They are dark bodies.

3.

Sequence of day and night	Sequence of four seasons
It is due to the rotation of Earth around its axis.	It is due to the revolution of Earth around the Sun.

4.

Common balance	Sensitive balance
It is used to measure the mass of large objects as fruits.	It is used to measure the mass of tiny (small) objects as jewels.

(B) 1. b. Sun. 2. c. Liquids and gases
3. a. 2000 4. c. bromine.

14 Saint Vincent De Paul School

1 (A) 1. c. all the previous.
2. c. copper. 3. c. melting.
4. b. Jupiter. 5. c. Carbon

(B) 1. Litre. 2. Bromine.
3. Mercury.

(C) 1. Used to measure the volumes of liquids and irregular solid bodies.
2. Used in the manufacture of the positive poles of dry batteries.
3. Used to estimate the mass of small objects as jewelleries and chemicals.

2 (A) 1. star
2. definite - indefinite
3. dark
4. Venus - Mars.
5. metals - non-metals.

(B) 1. c 2. e 3. b 4. a

(C) The volume of the brick
= length × width × height
= 20 × 10 × 2 = 400 cm^3

3 (A) 1. Matter.
2. Rusting of iron. 3. Element.
4. Physical change. 5. Mars.

(B) 1. Due to the revolution of the Earth around the Sun.
2. Because they are metals.
3. Because it causes a change in the shape of ice without any change in its structure.

4 (A) 1. (✗) ... the Sun, the eight planets, moons, comets, asteroids, meteoroids and meteors.
2. (✗) ... have different masses.
3. (✗) ... 400 centimetres.
4. (✗) ... a physical change.
5. (✗) ... except mercury ...

(B) 1. This part of the Earth is at night.
2. Water freezes and changes into ice.
3. It causes the sequence of day and night.

(C) 1. Freezing 2. Liquid state
3. Condensation

15 El-Gomrok Zone Sience Inspectorate

1 1. Venus – Mars.
2. physical – chemical
3. a mass – a volume.
4. metals – non-metals.

2 (A) 1. a. copper. 2. b. the Sun.
3. a. chemical 4. b. inclined.
5. c. aluminium.
6. a. rotation of the Earth around itself.

(B) 1. Because copper is a good conductor of electricity and can be bent or re-shaped as it is a metal.
2. Because the Sun is nearer to us than the other stars.

3 (A) 1. Bromine. 2. Moons.
3. Gaseous substances.
4. Saturn. 5. Summer.

(B) The volume of the stone = 40 – 30
= 10 cm^3.

4 (A) 1. (✓) 2. (✗) 3. (✓)
4. (✗) 5. (✓) 6. (✓)

(B) 1. It is used to measure the mass of large objects as fruits.
2. It is used in the manufacture of the positive poles of dry batteries.

16 Qualyobia Governorate

1 (A) 1. a. cm^3 2. c. jewels.
3. a. Burning of suger 4. c. 8
5. b. kilogram 6. a. autumn.

(B) 1. Because the apparent orbit of the Sun in summer is longer than the apparent orbit of the Sun in winter.
2. Because copper is a good conductor of electricity and can be bent or re-shaped as it is a metal.

2 (A) 1. a. mass. 2. b. Mars.
3. a. Solids 4. c. inclined.
5. b. Sulphur
6. c. graduated cylinder.

(B) Mercury - Earth - Uranus - Neptune.

3 (A) 1. Gram. 2. Planets.
3. Element. 4. Mars.
5. Mass. 6. Physical change.

(B) 1. Used in making jewels.
2. Used to measure the volumes of liquids and irregular solid bodies.

4 (A) 1. different 2. Graduated tape
3. summer. 4. three

(B) 1. It causes the sequence of the four seasons.
2. The bottle will explode as the volume of ice increases.

(C) The volume of the stone = $V_2 - V_1$
= 50 – 30
= 20 cm^3.

17 El-Sharkia Governorate

1 1. light.
2. liquid - gaseous.
3. Mercury - bromine 4. chemical
5. Gases 6. dark

2 1. Matter. 2. Mercury.
3. Melting. 4. Element.
5. Volume. 6. Mass.
7. Carbon. 8. Venus.

3 (A) 1. (✓) 2. (✗) 3. (✗)
4. (✓) 5. (✗) 6. (✗)

(B) 1. Because copper is a good conductor of electricity and can be bent or re-shaped as it is a metal.
2. Due to the rotation of the Earth around its axis.

4 (A) 1. a. length. 2. c. summer
3. b. eight. 4. d. aluminium
5. d. dry cells.
6. c. common balance

(B) 1. It is the change of matter from the liquid state to the gaseous state by heating.
2. It is the change of matter from the liquid state to the solid state by cooling.

18 El-Behira Governorate

1 1. a mass – a volume.
2. Sensitive balance
3. Melting of ice - dissolving of sugar in water
4. Mercury - Jupiter. 5. bridges.

2 (A) 1. d. cooling. 2. b. kilometre
3. c. Carbon 4. b. summer

(B) 1. Because aluminium is a good conductor of heat and can be bent as it is a metal.
2. Because the Earth's axis is inclined.

3 (A) 1. Element. 2. Liquid state.
3. The moon. 4. Mass.
5. Chemical change.

(B) The volume of the stone = $V_2 - V_1$
= 70 – 50
= 20 cm^3.

4 (A) 1. $365\frac{1}{4}$ days. 2. Mars
3. Graduated tape 4. evaporates

(B) 1. It causes the sequence of day and night.
2. The bottle will explode as the volume of ice increases.

19 Dakahlia Governorate

1 (A) 1. Earth 2. large masses.
3. planets. 4. chemical
5. iron

(B) 1. Because it reflects the sunlight falling on its surface.
2. Because copper is a good conductor of electricity and can be bent or re-shaped as it is a metal.
3. Due to the rotation of the Earth around its axis.

2 (A) 1. b. cm^3.
2. c. common balance.
3. a. mercury. 4. c. copper.

(B) 1. Gram.
2. The Earth planet.
3. Condensation. 4. Mars.

3 (A) 1. (×) 2. (✓) 3. (×) 4. (×)

(B) 1. Carbon
2. Chemical change.

(C) The volume of the stone = the volume of the water and the stone (V_2) – the volume of the water only (V_1) = 90 – 70 = 20 cm^3.

4 (A) Venus - Earth - Mars - Saturn - Neptune.

(B) 1. It is used to measure the mass of fruits and vegetables.
2. It is used in the manufacture of cooking pans, foil paper and some doorknobs.
3. It is used to measure the length or the dimensions of a regular solid body.

(C) 1. Moon. 2. Iron.
3. Metre.

20 Kafr El-Sheikh Governorate

1 (A) 1. sensitive balance.
2. Mercury - Jupiter 3. longer
4. Carbon - making electric wires.

(B) 1. Because it reflects the sunlight falling on its surface.
2. Due to the condensation of water vapour on the cover of the teapot.

2 1. c. mercury. 2. a. one state
3. b. Earth. 4. a. 30 cm^3
5. b. Oil 6. a. iron.
7. c. planets.
8. b. graduated cylinder containing water.

3 (A) 1. Metals. 2. Venus.
3. Element. 4. The Sun.

(B) 1. d 2. a 3. b 4. c

4 (A) 1. Physical change.
2. Chemical change.
3. Chemical change.
4. Physical change.

(B) 1. Venus 2. Earth
3. Mars 4. Saturn

21 Menofia Governorate

1 1. heat - light.
2. centimetre - metre.
3. electricity. 4. Mercury.
5. the liquid - the solid

2 (A) 1. Metals. 2. Planets.
3. Gases. 4. Gram.
5. Physical change.

(B) 1. Sun. 2. Sulphur.
3. Litre.

3 (A) 1. Due to the rotation of the Earth around its axis.
2. Because it has a mass and a volume.

(B) 1. inclined. 2. volumes.
3. cold 4. Iron
5. third

4 (A) 1. a. Burning of sugar
2. c. bromine. 3. c. spring.
4. b. 30

(B) 1. b 2. c 3. d 4. a

22 El-Gharbia Governorate

1 (A) 1. metals – non-metals
2. Mercury – Neptune
3. physical – chemical
4. day and night – four seasons
5. liquid – gaseous
6. large masses – large lengths.

(B) 1. Because they have definite shapes and volumes.
2. Because it is a dark body that revolves around the Sun.

2 (A) 1. b. carbon. 2. c. Sun.
3. a. melting then cooling
4. c. inclined.
5. b. melting of wax. 6. c. 300

(B) The volume of the cuboid
= length × width × height
= 5 × 3 × 2 = 30 cm^3.

3 (A) 1. Gram. 2. Summer.
3. Freezing. 4. The moon.
5. Rusting of iron. 6. Mercury.

(B) 1. Water changes into water vapour then water vapour condenses on the cold surface and changes into water droplets.
2. It causes the sequence of day and night.

4 (A) 1. Common balance
2. autumn and spring
3. Gases 4. Mars
5. Carbon 6. eight

(B) 1. Mercury. 2. Moon.

23 Port Said Governorate

1 (A) 1. a. eight. 2. b. carbon.
3. c. cm^3 4. a. 24 hours.
5. b. spring. 6. a. copper.

(B)

Physical change	Chemical change
- Sugar dissolving in water. - Wax melting.	- Wood burning. - Iron rusting.

2 (A) 1. 8 2. bad
3. length. 4. solid

(B) 1. Jupiter. 2. Neptune.
3. the Earth. 4. Mars.

3 1. Matter. 2. Metals.
3. Bromine. 4. The moon.

4 1. d 2. a 3. b 4. c

24 Suez Governorate

1 (A) 1. carbon. 2. iron
3. gaseous 4. red
5. summer. 6. bromine.

(B) 1. Solid 2. common balance
3. Jupiter. 4. blue

2 (A) 1. b. evaporation. 2. c. copper.
3. c. condenses. 4. b. Sun.
5. c. high 6. c. spring.

(B) 1. Because it is a dark body that revolves around the Sun.
2. Due to the revolution of the Earth around the Sun.

3 (A) 1. The moon. 2. Gram.
3. Condensation. 4. Physical change.
5. Common balance. 6. Neptune.

(B)

Physical changes	Chemical changes
- Sugar dissolving in water. - Wax melting.	- Wood burning. - Iron rusting.

4 (A) 1. (×) 2. (✓) 3. (✓) 4. (✓)

(B) The volume of the stone = $V_2 - V_1$
= 50 – 30
= 20 cm^3.

(C) 1. Venus 2. Mars 3. Saturn 4. Uranus

25 Ismailia Governorate

1 (A) 1. Mercury - Neptune.
2. small lengths - large lengths.
3. liquid - gaseous.
4. $365\frac{1}{4}$ days - year.

(B) 1. (×) 2. (×)
3. (×) 4. (✓)

2 (A) 1. Mass. 2. Planets.
3. Metals.
4. Graduated cylinder.

(B) 1. Because they are very far from us.
2. Because it has a definite volume and an indefinite shape.

(C) 1. common balance.
2. large masses as cheese or fruits.

3 (A) 1. Bromine 2. inclined.
3. Centimetre 4. Jupiter.
5. solids.

(B) 1. It is used to estimate the mass of tiny objects as jewelleries and chemicals.
2. Used in the manufacture of cooking pans, foil paper and some doorknobs.

(C) The volume of the stone = $V_2 - V_1$
= 80 – 30
= 50 cm^3

4 (A) 1. c. 120 2. a. copper.
3. d. spring. 4. b. the Sun.
(B) 1. Melting 2. Evaporation
(C) 1. Chemical change.
2. Physical change.
3. Chemical change.

26 Damietta Governorate

1 (A) 1. Neptune - Mars.
2. sensitive balance - graduated cylinder.
3. metals - non-metals.
4. chemical - physical
5. liquid - gaseous
(B) 1. Because aluminium is a good conductor of heat and can be bent as it is a metal.
2. Due to the revolution of the Earth around the Sun.
3. Because this causes a change in the shape and structure of iron producing a new substance with new properties.

2 (A) 1. mercury 2. The Sun
3. Freezing 4. 600
(B) 1. Gram. 2. Carbon.
(C) 1. Used to measure the length of a body.
2. Used in making bridges and street lights.

3 (A) 1. Matter. 2. Mercury.
3. Solid substance.
4. Physical change. 5. Metals.
(B) 1. Water vapour in air condenses on the outer surface of the glass forming drops of water.
2. A physical change takes place.

4 1. b. Venus and Mars. 2. a. spring.
3. d. copper. 4. c. melting.
5. c. inclined. 6. b. silver
7. a. Liquid 8. a. 20 cm^3

27 Fayoum Governorate

1 1. solid - gaseous. 2. iron
3. non-metals - electricity.
4. Venus - Mars. 5. cooling

2 (A) 1. c. copper.
2. c. Dissolving of sugar in water
3. c. 5 4. b. Evaporation
(B) 1. Due to the rotation of the Earth around its axis.
2. Because they have definite shapes and volumes.

3 (A) 1. Mercury. 2. Element.
3. Planets. 4. Melting.
5. Solid substance.
(B) 1. Sulphur. 2. Moon.
3. Bromine.

4 (A) 1. (✗) Common balance is ...
2. (✗) ... is different.
3. (✗) ... in spring.
4. (✓)

(B) 1.

Point of comparison	Metals	Non-metals
The conductivity of heat :	They are good conductors of heat.	They are bad conductors of heat.

2.

Point of comparison	Physical change	Chemical change
The change in the structure of a substance :	Doesn't take place.	Takes place.

28 El-Minia Governorate

1 (A) 1. a. mass. 2. c. Gases.
3. a. evaporation. 4. b. Sun.
5. c. length × width × height
6. c. 8
(B) The volume of the book
= length × width × height
= 5 × 2 × 2 = 20 cm^3

2 (A) 1. Matter. 2. The moon.
3. Measuring ruler. 4. Element.
(B) 1. Physical change.
2. Chemical change.

3 (A) 1. solid 2. third
3. mercury 4. autumn and spring
(B) 1. Because it is a good conductor of electricity.
2. Because they can be bent or re-shaped as they are metals.

4 (A) 1. e 2. f 3. b
4. c 5. a
(B) 1. Ice melts and changes into water.
2. It causes the sequence of day and night.

29 Sohag Governorate

1 1. Moons. 2. Gram.
3. Graduated cylinder. 4. Condensation.

2 (A) 1. (✗) 2. (✗) 3. (✗) 4. (✓)
(B) 1. Venus 2. Earth 3. Mars 4. Neptune

3 1. electricity. 2. summer
3. physical 4. freezing
5. Mercury - bromine
6. Sun - eight planets

4 (A) 1. b. rotation of the Earth around its axis.
2. b. cm^3 3. c. aluminium.
4. a. gaseous
(B) 1. Because it causes a change in the shape of ice without any change in its structure.
2. Because it radiates heat and light.

30 Aswan Governorate

1 (A) 1. d. carbon. 2. b. condensation.
3. a. is malleable and ductile.
4. c. cm^3 5. c. melting of ice.
(B) 1. Due to the revolution of the Earth around the Sun.
2. Because aluminium is a good conductor of heat and can be bent as it is a metal.

2 (A) 1. Common balance.
2. Gases. 3. Mercury.
4. Matter. 5. Saturn.
(B) 1. Water freezes and changes into ice.
2. The piece of iron rusts, where a brittle brown layer is formed on it.

3 (A) 1. electricity.
2. metals - non-metals.
3. Mercury - Neptune 4. chemical
5. centimetre - metre.
(B) 1. Spring 2. Summer
3. Winter 4. Autumn

4 (A) 1. (✗) 2. (✗) 3. (✗)
4. (✓) 5. (✓) 6. (✓)
(B)

A star	A planet
- It is a shiny body. - It emits heat and light. - It rotates in the space. Ex. : The Sun.	- It is a dark body. - It doesn't emit heat or light. - It revolves in the space around the Sun. Ex. : The Earth.



Guide Answers of Final Examinations 2020





Cairo Governorate

1 Nozha Language Schools

1. (A) 1. b. 8 2. b. liquids
3. a. 2 4. b. Air
5. b. radiates light. 6. c. melting of iron.

(B) 1. (✗) 2. (✓) 3. (✗)
4. (✗) 5. (✓) 6. (✗)

2. (A) 1. positive 2. cm^3
3. solids 4. Venus - Mars
5. Metals 6. Condensation

(B) 1. d 2. a 3. e 4. c 5. b

3. (A) 1. solid – liquid
2. Neptune – Venus
3. chemical – physical
4. The moon – reflects
5. liquids – volumes.

(B) 1. Because the Sun is nearer to us than the other stars.
2. Because this causes a change in the shape and structure of matter producing a new substance with new properties.

4. (A) 1. Uranus. 2. Mercury.
3. Mars. 4 Jupiter.

(B) 1. Mass. 2. Four seasons.
3. Iron. 4. planets.
5. Mercury. 6. Physical change.

(C) 1. Water freezes and changes into ice.
2. The number of hours of the day and the number of hours of the night are equal.

2 Saint Mary's Language School

1. (A) 1. c. kilometre. 2. b. Liquid
3. c. chemical 4. b. Sun
5. b. summer 6. c. copper.

(B) Volume = Length × Width × Height
$= 5 \times 4 \times 3 = 60\ m^3$

(C) Mercury - Mars - Jupiter - Uranus.

2. (A) 1. Bromine. 2. Melting.
3. The moon. 4. Mass.
5. Element. 6. Carbon.

(B) 1. Mercury 2. Neptune
3. sensitive balance. 4. 100
5. freezes. 6. Iron

3. (A) 1. Earth - its axis. 2. physical
3. 2000 4. carbon dioxide.
5. Mars

(B) 1. It causes the sequence of the four seasons.
2. The bottle will explode as the volume of water increases by freezing.

(C) 1. Comman balance.
2. Graduated cylinder.

4. (A) 1. (✓) 2. (✗) 3. (✓)
4. (✓) 5. (✗) 6. (✓)

(B) 1. Because the Sun is a lightening body that emits light and heat.
2. Because it causes a change in the shape and the structure of dough producing a new substance with new properties.

(C) The volume of each stone = 30 ÷ 3
$= 10\ cm^3$.

3 East Nasr city Eduactional Zone

1. 1. Large masses – measuring ruler.
2. Mars – Neptune.
3. metals – non-metals
4. definite – shapes.
5. solid – liquid

2. (A) 1. Due to the revolution of the Earth around the Sun.
2. Because it has a mass and a volume.
3. Because copper is a good conductor of electricity and can be pulled into wires as it is a metal.

(B) 1. c. Jupiter. 2. a. mercury.
3. b. cm^3. 4. c. 8
5. b. aluminium. 6. a. volume

3. (A) 1. Evaporation. 2. Volume.
3. Venus. 4. The moon.
5. Gram (gm). 6. Solid state.
7. Sensitive balance. 8. Carbon.

(B) 1. Physical change.
2. Chemical change.

4. (A) 1. Mercury. 2. gaseous
3. cooling. 4. reflects
5. three 6. 300

(B) Sequence of day and night.

(C) 1. They are metals used in making jewels.
2. A metal used in making bridges.

4 St. Joseph's Language School

1. (A) 1. shape and structure of matter – appearance of matter.
2. carbon – copper.
3. Earth – its axis
4. common balance – volume

(B) 1. Because it reflects the sunlight falling on its surface.
2. Because water changes into water vapour by heating.

2. (A) 1. Earth planet. 2. Chemical change.
3. Bromine. 4. Centimetre.

(B) 1. The lamp is not illuminated, because sulphur is a bad conductor of electricity.
2. It causes the sequence of the four seasons.

3. (A) 1. b. gm
2. c. condensation.
3. b. Sun
4. b. physical change.

(B) 1. It is used to estimate the mass of tiny objects as jewelleries.
2. A metal used in the manufacture of cooking pans, foil paper and some doorknobs.

4. (A) 1. (✗) Gaseous ....
2. (✓)
3. (✗) .... is longer than ....
4. (✗) .... except carbon.

(B) 1. It is the amount of matter that the object contains.
2. It is the change of matter from the liquid state to the solid state by cooling.

5 Mena Language School

1. (A) 1. large masses. 2. liquid matter.
3. iron 4. metals.

(B) 1. Element. 2. Planets.
3. Copper. 4. Jupiter.

2. (A) 1. c. cm^3. 2. b. evaporation.
3. a. aluminium. 4. b. Mercury.

(B) 1. Because it is a good conductor of electricity.
2. Because they are very far from us.

3. (A) 1.

Melting of wax	Burning of wax
Physical change.	Chemical change.

2.

Planet	Star
It is a dark body.	It is a shiny body.

(B) 1. (✗) 2. (✗) 3. (✗)
4. (✓) 5. (✗) 6. (✓)

4. (A) 1. d 2. a 3. b 4. c

(B) Volume of box = Length × Width × Height
$= 3 \times 2 \times 1 = 6\ cm^3$.

6 Basateen & Dar El-Salam Edu. Adm.

1. (A) 1. c. three
2. b. water
3. b. shapes only
4. b. a physical change.
5. a. are lightening bodies.
6. a. sensitive balance.
7. d. sulphur.

(B) The water vapour condenses on the cold glass sheet and changes into water.

2. (A) 1. Chemical change. 2. Mercury.
3. Condensation. 4. Metre (m).

(B) 1. Because iron has definite shape and volume.
2. Because it is a good conductor of electricity.

3. (A) 1. (✗) 2. (✗) 3. (✓) 4. (✗)

(B) Volume of the box = Length × Width × Height
$= 5 \times 6 \times 2 = 60\ cm^3$.

4. (A) 1. b 2. d 3. a 4. c

(B) 1. It is used to measure the length of a body.
2. It is used to measure the mass of large objects as cheese, vegetables and fruits.

(C) 1. Lamp in fig. (2).
2. Because copper is a good conductor of electricity.

Giza Governorate

7 Dar El-Hanan Language School

1. (A) 1. metals – non-metals
2. carbon. 3. Mercury – Neptune.

(B) Volume of the box = $5 \times 2 \times 2 = 20\ cm^3$

2. (A) 1. mass 2. three

(B) 1. Because they are metals.
2. Because it reflects the sunlight falling on its surface.

3. (A)

Melting of wax	Burning of candle
Physical change.	Chemical change.

(B) 1. The iron nail rusts, where a brittle brown layer is formed on the iron nail.
2. It causes the sequence of day and night.

4. (A) 1. Matter. 2. Gaseous state.
3. Element. 4. Stars.

(B) 1. c. aluminium. 2. c. evaporation.

8 Al-Agoza Directorate

1. (A) 1. heat – light.
2. physical – chemical
3. solid – liquid
4. Mars – Neptune.

(B) Mercury – Earth – Jupiter – Neptune.

2. (A) 1. a. common balance.
2. c. copper. 3. c. 24 hours.
4. b. 8

(B) 1. Moon. 2. Sulphur.

3. (A) 1. Mass. 2. Carbon.
3. The moon. 4. Jupiter.

(B) 1. (✓) 2. (✗)

4. (A) 1. Because aluminium is a good conductor of heat and can be shaped as it is a metal.
2. Due to the rotation of the Earth around its axis.

(B) 1. physical 2. stars.

9 Al-Haram Educational Zone

1. 1. a mass – a volume.
2. large masses – small lengths.
3. metals – non-metals.
4. a chemical – a physical
5. Venus – Mars.

2. 1. c. Jupiter. 2. b. copper.
3. c. 8 4. c. cm^3.
5. b. mercury. 6. c. inclined.

3. (A) 1. Planets. 2. Mass.
3. Saturn. 4. Gaseous state.
5. Matter. 6. Physical change.

(B) Volume of box = Length × Width × Height
$= 3 \times 2 \times 1 = 6\ cm^3$.

4. (A) 1. (✓) 2. (✗) 3. (✓)
4. (✗) 5. (✗) 6. (✗)

(B) Mercury – Venus – Earth – Mars – Jupiter – Neptune.

10 Omrania Educational Zone

1. (A) 1. Liquid – solid 2. solid
3. copper – iron
4. metals – non-metals.

(B) Mercury – Venus – Earth – Mars – Jupiter.

2. 1. Evaporation. 2. Matter.
3. Sensitive balance. 4. The moon
5. The Sun. 6. Gaseous state.

3. 1. c. carbon. 2. a. mercury.
3. a. Liquid 4. b. volume
5. c. Inclined. 6. c. Saturn.

4. (A) 1. (✓) 2. (✓) 3. (✗) 4. (✗)

(B) 1. Physical change.
2. Chemical change.
3. Chemical change.
4. Physical change.

Alexandria Governorate

11 El-Gomrok Educational Zone

1. 1. b. shapes only 2. a. inclined.
3. c. reflects light.
4. b. Melting of a candle.
5. a. aluminium.
6. c. measuring cylinder.

2. (A) 1. Freezing. 2. The Sun.
3. Non-metals. 4. Metre.
(B) 1. Because it has a mass and a volume.
2. Due to the rotation of the Earth around its axis.

3. (A) 1. Mercury – Neptune
2. 3000 3. Saturn.
4. chemical – physical
(B) 1. A metal used in making electric wires, statues and metallic coins.
2. It is used to estimate the mass of small objects as jewelleries and chemicals.

4. (A) 1. Carbon 2. mercury.
3. Gaseous 4. star
(B) The volume of box = Length × Width × Height = 5 × 3 × 2 = 30 cm^3

12 South Alex. Educational Zone

1. (A) 1. 300 2. Earth
3. Condensation 4. chemical change.
5. Common balance (or sensitive balance)
6. three
(B) 1. (✗) 2. (✓) 3. (✓)
(C) Volume = Length × Width × Height
= 3 × 2 × 1 = 6 cm^3

2. (A) 1. heat – light. 2. solid – liquid
3. a mass – a volume.
(B) 1. b. Uranus. 2. c. 8
3. b. volume. 4. a. copper.
5. c. mass 6. c. cm.

3. (A)

Solids	Liquids	Gases
Car	Water	Air
Wood	Milk	Oxygen

(B) 1. Because they are very far (distant) from us.
2. Because it has a definite shape and volume.

4. (A) 1. Element. 2. The moon.
3. Metals. 4. Liquid state.
5. Mars.
6. Graduated cylinder.
(B) 1. d 2. c 3. e
4. f 5. b 6. a

13 East Alex. Educational Zone

1. 1. centimetre – metre.
2. non-metals – electricity.
3. a physical – a chemical
4. red – blue
5. gaseous – liquid
6. shiny – dark

2. (A) 1. Freezing.
2. Graduated cylinder. 3. Venus.
(B) 1. Moon. 2. cm^3 3. Mercury.

3. (A) 1. a. copper. 2. b. its axis.
3. a. cutting paper. 4. b. liquid
(B) 1. Because they are very far (distant) from us.
2. Because aluminium is a good conductor of heat and can be shaped as it is a metal.

4. (A) 1. (✓) 2. (✗) 3. (✗) 4. (✓)
(B) Volume = Length × Width × Height
= 10 × 5 × 2
= 100 cm^3

Qalyoubia Governorate

14 Memphis Language School

1. 1. metals – non-metals. 2. dark
3. changes. 4. physical – chemical
5. Sun – planets 6. melting
7. gaseous – liquid

2. (A) 1. Because they are metals.
2. Because they are very far (distant) from us.
(B) 1. b. planets.
2. d. heating or cooling.
3. c. cm^3 4. b. Neptune.

3. (A) 1. Chemical change.
2. Summer.
3. Mars.
4. Carbon.
(B) 1. (✓) 2. (✗) 3. (✓) 4. (✗)

4. (A) 1. Iron. 2. Gold & silver.
3. Copper.
(B) Volume of the box
= Length × Width × Height.
= 4 × 3 × 2 = 24 cm^3.
(C) 1.

Melting of wax	Burning of wax
Physical change.	Chemical change.

2.

Planet	Star
It is a dark body.	It is a shiny body.

Menoufia Governorate

15 Shebeen El-Koum Educational Zone

1. (A) 1. Mars. 2. Mercury.
3. 24 4. sulphur.
5. inclined. 6. fixed orbits.
(B) 1. (✗) 2. (✗) 3. (✗)
4. (✓) 5. (✓) 6. (✓)

2. (A) 1. Mass. 2. Chemical change.
3. Freezing. 4. Matter.
5. Solar system. 6. Solids.
(B) 1. The taste of sugar changes, because a chemical change takes place on heating a sugar cube.
2. The number of hours of the day and the number of hours of the night are equal.
3. A physical change takes place, where the water evaporates and the salt remains in the dish.

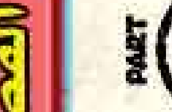
3. (A) 1. h 2. d 3. j
4. e 5. a 6. c
(B) 1. Moon. 2. Sulphur.
3. Common balance.

4. (A) 1. Because it has indefinite shape and volume.
2. Due to the rotation of the Earth around its axis.
3. Due to condensation of water vapour found in the air on the leaves of plants and cold surfaces.
(B) 1. A metal used in making bridges, car chassis (car frames), doors and street lights (lamp posts).
2. A metal used in the manufacture of cooking pans, foil paper and some doorknobs.
3. A metal used in making electric wires, statues and metallic coins.
4. A non-metal used in the manufacture of the positive poles (electrodes) of dry batteries.
5. It is used to measure the mass of large objects as cheese, vegetables and fruits.
6. It is used to measure the volumes of liquids and irregular solid bodies.

El-Gharbia Governorate

16 Gharbia Educational Directorate

1. (A) 1. sensitive balance – graduated tape
2. solids – liquids.
3. a chemical – melting
(B) 1. c 2. e 3. a 4. b



2. (A) 1. a. graduated cylinder. 2. c. gas.
3. a. Earth 4. b. Burning.

(B) 1. Because it is a bad conductor of electricity.
2. Because the Sun is nearer to us than the other stars.

3. (A) 1. Element. 2. The moon.
3. Condensation. 4. Solar system.

(B) Volume = Length × Width × Height
$= 10 \times 5 \times 2$
$= 100\ cm^3$

4. (A) 1. Aluminium 2. freezes.
3. inclined. 4. volume

(B) 1. It causes the sequence of the four seasons.
2. It melts and changes into water.

El-Dakahlia Governorate

17 Dakahlia Educational Directorate

1. (A) 1. c. kilometres. 2. d. The Sun
3. c. jewels.
4. c. Graduated cylinder
5. b. Sulphur

(B) 1. Due to the rotation of the Earth around its axis.
2. Because it is a good conductor of electricity.

2. (A) 1. a chemical – a physical.
2. Venus – Mars.
3. Common balance – measuring ruler
4. ice – water vapour.

(B) The volume = Length × Width × Height
$= 5 \times 4 \times 6 = 120\ cm^3$.

3. (A) 1. 365 $\frac{1}{4}$ 2. Evaporation
3. Iron. 4. Liquids
5. copper. 6. gaseous

(B) 1. Mercury. 2. Moon.
3. cm^3. 4. Copper.

(C) Venus – Mars – Saturn – Neptune

4. (A) 1. Winter. 2. Volume.
3. Earth planet. 4. Metals.
5. Melting. 6. Element.

(B) It is anything that has a mass and a volume.

(C) 1. c 2. d 3. a 4. b

Ismailia Governorate

18 Ismailia Educational Directorate

1. 1. metals – non-metals.
2. physical – chemical
3. Iron – copper
4. sensitive balance – gram.
5. heating – cooling.

2. (A) 1. Water freezes amd changes into ice.
2. The iron nail rusts, where a brittle brown layer is formed on the iron nail.
3. It causes the sequence of day and night.

(B) 1. Silver. 2. Ton. 3. Moon.

3. (A) 1. Liquid state. 2. Mass.
3. Kilogram.

(B) Volume of the box
= Length × Width × Height
$= 5 \times 2 \times 1 = 10\ cm^3$.

4. (A) 1. Water vapour. 2. volume.
3. aluminium. 4. star.

(B) 1. e 2. b 3. c 4. a

Port Said Governorate

19 Science Inspectorate

1. 1. iron 2. electricity.
3. Venus – Mars. 4. a mass – a volume.

2. (A) 1. a. aluminium. 2. b. 8
3. c. jewels. 4. c. cm^3.

(B) 1. d 2. a 3. b 4. c

3. (A) 1. Metals. 2. Gram.
3. Element.

(B) 1. star 2. mercury
3. Common balance

4. (A) Because it reflects the sunlight falling on its surface.

(B) Water freezes and changes into ice.

(C)

Physical change	Chemical change
• Dissolving sugar. • Wax melting.	• Wood burning. • Iron rusting.

(D) 1. Mercury. 2. Mars.
3. Jupiter. 4. Neptune.

Damietta Governorate

20 Science Inspectorate

1. (A) 1. aluminium. 2. carbon.
3. chemical 4. non-metals.

(B) 1. Because copper is a good conductor of electricity and can be pulled into wires as it is a metal.
2. Because it is a lightening body that emits light and heat.

2. (A) 1. Common balance (or sensitive balance)
2. Mercury 3. Melting
4. physical change. 5. a volume.

(B) Venus – Earth – Mars – Saturn – Uranus – Neptune

3. (A) 1. Jupiter. 2. Centimetre.
3. Copper. 4. The solar system.
5. Summer.

(B) Sulphur.

4. (A) 1. (✓) 2. (✓) 3. (×) 4. (×)

(B) (1) The iron nail rusts, where a brittle brown layer is formed on the iron nail.
(2) It is a metal used in making jewels.

Fayoum Governorate

21 Science Supervision for Governmental Lang. Sch.

1. 1. solids – gaseous. 2. iron
3. chemical 4. volume
5. summer

2. 1. b. aluminium.
2. a. changing of the appearance
3. c. ton 4. c. Jupiter.
5. a. one moon. 6. b. Evaporation

3. 1. copper. 2. solids.
3. length. 4. day and night.
5. Sun 6. chemical

4. (A) 1. Metals. 2. Matter.
3. Gaseous state.
4. One year (365 $\frac{1}{4}$ day).

(B) 1. Because they are very far (distant) from us.
2. Because it has a definite volume and an indefinite shape.

Assiut Governorate

22 Assiut Educational Directorate

1. 1. a mass – a volume.
2. large masses. 3. iron
4. physical – chemical
5. solid – liquid – gaseous.
6. Mercury – Neptune
7. metals.

2. (A) 1. b. evaporation. 2. c. copper.
3. b. Jupiter. 4. b. radiates.
5. c. cm^3.

(B) Volume = Length × Width × Height
$= 5 \times 3 \times 1 = 15\ cm^3$.

3. (A) 1. Solid state. 2. Melting.
3. Metre. 4. Element.
5. Planets.

(B) Because it reflects the sunlight falling on its surface.

4. 1. volume. 2. mercury.
3. Physical 4. the Sun.
5. Carbon 6. 8

Aswan Governorate

23 Al-Mostaqbal Language schools

1. (A) 1. large masses. 2. gaseous
3. iron 4. chemical

(B) 1. Because it reflects the sunlight falling on its surface.
2. Because they are very far (distant) from us.

2. (A) 1. Element. 2. Metals.
3. Planets. 4. The moon.



PART 3

(B)

Stars	Planets
They are lightening bodies with different sizes that lie in the space.	They are dark celestial bodies that revolve around the Sun in fixed orbits.

3. (A) 1. a. 20 cm^3. 2. c. copper.
3. b. Dissolving of sugar in water
4. b. good conductor of electricity.

(B) 1. Water freezes and changes into ice.
2. A chemical change takes place and a brown substance is formed.

4. (A) 1. d 2. a 3. b 4. c

(B) 1. The sequence of day and night.
2. The sequence of four seasons.

Luxor Governorate

24 Science Inspectorate

1. (A) 1. the masses of large objects – the volumes of liquids and irregular solid bodies.
2. The Sun – Jupiter

(B) 1. Burning of sugar.
2. Sulphur.

2. (A) 1. Chemical change. 2. The moon.
3. Aluminium. 4. Mars.

(B) 1. Due to the revolution of the Earth around the Sun.
2. Because copper is a good conductor of electricity and can be pulled into wires as it is a metal.

3. (A) 1. 8 2. mercury.
3. Neptune. 4. length.

(B) The volume of the cuboid
= Length × Width × Height
= 5 × 3 × 2 = 30 cm^3.

4. (A) 1. c. jewels. 2. c. Venus.
3. b. evaporation. 4. b. winter

(B) 1. The bottle will explode as the volume of water increases by freezing.
2. It causes the sequence of day and night.

South Sinai Governorate

25 Sinai Educational Administration

1. (A) 1. large masses – large lengths.
2. physical – chemical
3. liquid – gaseous
4. red – blue
5. metals – non-metals.

(B) 1. A chemical change takes place and a brown substance is formed.
2. Water changes into water vapour, then water vapour condenses on the cold surface and changes into water.

2. (A) 1. melting 2. the length.
3. Metals 4. gaseous
5. star 6. Mercury
7. The physical

(B) 1. The sequence of day and night.
2. The sequence of four seasons.

(C) 1. A metal used in making bridges, car chassis, doors and street lights.
2. A metal used in making jewels.
3. A metal used in making electric wires, statues and metallic coins.

3. (A) 1. c. good conductor of electricity.
2. b. dissolving of salt in water.
3. c. cm^3. 4. a. the Sun.
5. c. Venus.
6. b. decrease in temperature.
7. a. aluminium.

(B) 1. b 2. c 3. e 4. a 5. f

4. (A) 1. Common balance. 2. Matter.
3. Non-metals. 4. Saturn.
5. Planets. 6. Element.

(B) 1. Because it reflects the sunlight falling on its surface.
2. Because they are very far (distant) from us.
3. Because they are metals.

(C)

State of matter	Solid state	Liquid state	Gaseous state
The shape	Definite.	Indefinite (takes the shape of its container).	Indefinite (takes the shape of its container).